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Statement of Purposes

The JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY and QUARTERLY REVIEW OF PSYCHIATRY and NEUROLOGY are dedicated to the search for the fundamental factors in the etiology and pathogenesis of psychiatric disorders; to the training of an alert, progressive, and qualified psychiatric personnel; and to the stimulation and support of all phases of psychiatric service and research—biologic, chemical, psychologic, physiologic, and social.

In the pursuit of these aims, the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY and QUARTERLY REVIEW OF PSYCHIATRY and NEUROLOGY will venture wherever the quest may lead. Its sole criterion will be the promise of an increment in the understanding of the mind's ills. It will seek, above all, to bridge national boundaries, language barriers, and the artificial demarcations of schools and trends.

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The JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY and QUARTERLY REVIEW OF PSYCHIATRY and NEUROLOGY look on psychiatry as an integral whole that is, in turn, an organic part of the world of science. It seeks to be not a mere sheaf of passive paper, but a dynamic organism by means of which its editorial board will endeavor to utilize every opportunity and facility in the field of human knowledge to fulfill the tasks to which it is dedicated.

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&

QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY

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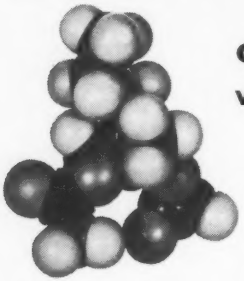
Two articles in the April 30th issue of The Journal of the AMA[1,2] report on . . .



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Clinical Psychopathologic Conferences are being included as a regular feature of J.C.E.P. This section will attempt to further the attainment of more uniform clinical diagnostic evaluations which is so essential to the elucidation of correlations and associations between clinical, neurologic, psychologic, and biologic elements. Subsequent issues will present clinical case presentations illustrative of other psychophysiopathologic disorders. These will be contributed by psychiatric hospitals, clinics, and psychiatrists throughout the world. Manuscripts together with accompanying illustrations should be forwarded to the JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY, 30 East 60th Street, New York, N. Y., Attention: Editor, Clinical Psychopathologic Conferences.

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PSYCHIATRY ABSTRACTS

NEUROLOGY ABSTRACTS

JOURNAL OF CLINICAL AND EXPERIMENTAL PSYCHOPATHOLOGY
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QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY

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Anoxia in Electroshock Therapy

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Electroshock therapy is useful in certain disease conditions. The complications associated with it, however, have been responsible for the avoidance of this method of treatment by many physicians. Even in institutions where this method of therapy is regularly used, electroshock treatment has been denied to certain patients who are in poor physical condition. Among complications that were noted with considerable frequency are skeletal fractures, cyanosis, apnea, autonomic reflexes, and effects upon the cardiovascular system.

The introduction of the muscle-relaxing drug, curare, made a substantial change in electroshock therapy. In recent years other muscle-relaxing drugs have been introduced, and these have been used for the prevention of complications during electroshock therapy. The principal function of the muscle-relaxing drug is to reduce the severity of the convulsions, and thereby to reduce the incidence of skeletal fractures.

Since the duration of convulsions in electroshock therapy is only about a minute, the drug-induced muscular relaxation need not be prolonged. The duration of action of curare is from 30 to 40 minutes; the duration of action of succinylcholine is only about five minutes. A single intravenous injection of succinylcholine produces maximum muscular relaxation

within 60 to 90 seconds; its effect begins to diminish after two to three minutes, and its effect disappears almost completely within five minutes. The relatively fleeting action of succinylcholine appears to make it the most desirable of the muscle relaxant drugs for use in electroshock therapy. In addition, succinylcholine has the advantage of producing minimal side effects of a histamine type.

In small doses succinylcholine produces mild to moderate muscular relaxation, without great interference with the respiratory mechanism. In larger doses the muscular paralysis becomes complete. The muscle relaxing effect of the drug is often preceded by fibrillary twitchings of the voluntary muscles. When complete muscular paralysis is produced a period of apnea occurs, the duration of which depends upon amount of the drug used: the duration rarely exceeds five minutes if the dose of succinylcholine is not excessive.

Prior to the institution of electroshock therapy, sedation of the patient is frequently desirable for the purpose of relieving apprehension and diminishing the dislike of the patient for this type of treatment. Sedation may be accomplished by the intravenous administration of a soluble barbiturate. Atropine should be administered to decrease secretions.

PURPOSE OF THIS STUDY

Many patients develop apnea and cyanosis during and after electroshock therapy. These complications may occur whether or not muscle-relaxant drugs are used, although the frequency of severe respiratory disturbances is perhaps increased by the use of muscle-relaxant drugs. It is axiomatic that anoxia is harmful to both the brain and the heart. Some of the complications and many of the deaths which follow electroshock therapy are respiratory in origin and are due to anoxia.

This study was instituted to determine the degree of anoxia associated with electroshock therapy and to find a simple method of reducing or preventing the anoxia.

METHOD

Patients requiring electroshock therapy at the Columbus Receiving Hospital were selected for study. These patients ranged in age from 18 to 72 years. Premedication consisting of atropine sulfate 0.4 mg. (1/150 grain) was administered 30 minutes prior to treatment. An ear oximeter was attached and pretreatment readings of arterial oxygen saturation were obtained.

In order to provide sedation and muscle relaxation before the electroshock therapy, each patient was given pentothal sodium 150 mg. and succinylcholine 15 to 20 mg. intravenously. The doses of pentothal sodium and succinylcholine were selected to allow the occurrence of convulsions of minimal to moderate severity. A mouth prop was used to keep the mouth open and the chin was supported in such a way as to maintain the best possible airway. Electroshock therapy was administered 60 to 90 seconds later, after the onset of fibrillary twitchings indicated that the effect of succinylcholine had taken place. Apnea lasting for two to three minutes occurred in about half the patients. The arterial oxygen saturation was recorded every minute, or more often, during and following the convulsions until normal levels were again reached.

Group 1. Therapy was administered to 16 patients in the routine manner. The attachment of the ear oximeter for observation was the only thing which differentiated this group of patients from those who did not participate in the study. The anesthesiologists did not alter or interfere with the routine handling of patients, and were present only as observers. Following the convulsion, and after the maximum drop in arterial oxygen had occurred, oxygen inhalations were given for the purpose of restoring the oxygen saturation to normal as rapidly as possible.

Group 2. In this group of 22 patients the same procedure was followed, with the exception that before instituting electroshock therapy, oxygen was administered until the ear oximeter recorded maximum arterial oxygen saturation. Oxygen was administered at the rate of 15 liters per minute before, during, and after the convulsion by holding the mask in loose contact with the patient's face. The administration of oxygen was continued until the arterial oxygen saturation returned to its normal level. In those instances where apnea occurred, artificial respiration was not given; the purpose of the experiments was to determine how much benefit could be derived from oxygen administration alone.

RESULTS

Group 1. Oxygen was not administered prior to electroshock therapy. The average arterial oxygen saturation before instituting treatment was 95 per cent. One minute after the convulsion, the average arterial oxygen saturation was reduced to 75 per cent. The lowest oxygen saturations occurred between 30 and 90 seconds after the shock; 10 of the

TABLE I
Arterial Oxygen Saturation during Electroshock Therapy

	Lowest Levels	
	Without oxygen	With oxygen
	42	60
	55	65
	57	75
	58	83
	60	84
	62	84
	64	88
	64	91
	65	92
	66	92
	70	92
	71	93
	72	93
	75	94
	76	94
	77	96
		96
		97
		98
		98
		98
		100
Average	65	90

16 patients had low readings below 70 per cent, and the average lowest reading was 65 per cent. Three minutes after the convulsion had ceased, the oxygen saturation was still below 90 per cent in 5 of these patients. Oxygen inhalation was then administered, and an additional five minutes were required for the arterial oxygen saturations to return to their pretreatment level of 95 per cent.

Group 2. Oxygen was administered for two or three minutes before treatment. Arterial oxygen saturation was then at a maximum and the readings averaged 98 per cent. The administration of oxygen was continued during and after the treatment. Immediately after the convulsions, the oxygen saturation was reduced to an average of 92 per cent and this was followed by a rapid rise to the pretreatment level of 98 per cent. The lowest oxygen saturation readings obtained in this group were 60 and 65 per cent. These low levels occurred in two patients, and the oxygen saturation in both individuals returned to 90 per cent within two minutes. They were caused by mechanical obstruction of the airway and apnea. The average of the lowest readings was 90 per cent.

COMMENTS

Anoxia occurs during convulsions for several reasons. The muscles of inspiration are involved in the convulsion and cannot function. A patent airway is not maintained both because consciousness is lost, and because the muscles of the air passages are also involved in the convulsion. The patient's respiratory efforts may cease both because of depression of the respiratory center and because of paralysis of the neuromuscular mechanism by the muscle-relaxant drugs.

The purpose of this study was to determine what changes in arterial oxygen saturation ordinarily take place during convulsive therapy, and to determine whether inhalation of oxygen would be of value. Since artificial respiration is ordinarily not given following electroshock therapy, except when patients are in serious difficulty, it was not used during the brief periods of apnea encountered in these patients. Preparations were made and equipment was available for this purpose, however, and in no instance was the safety of the patient compromised in order to complete the study. It is, of course, recommended that if apnea develops during electroshock therapy, artificial respiration should be administered. This can be accomplished either by manual pressure on the breathing bag or by the use of a mechanical resuscitator. This would undoubtedly result in a further decrease in the duration and the degree of anoxia.

The excellent work of Wilson et al[19] was not available at the time this study was made. In general our findings correlate very well with theirs. Using pentothal, succinylcholine, and 100 per cent oxygen, they maintained 98 per cent arterial oxygen saturation; however, artificial respiration was used in their patients, whereas it was not used in our series. The doses of succinylcholine and the incidence and duration of apnea were greater than in our series. Our aim was to have the patient maintain his own respiration as much as possible because we believe that this is simpler and safer than employing an apneic technique.

The physician who administers electroshock therapy should be trained in resuscitation, and should have the necessary equipment on hand for this purpose. In practice, however,

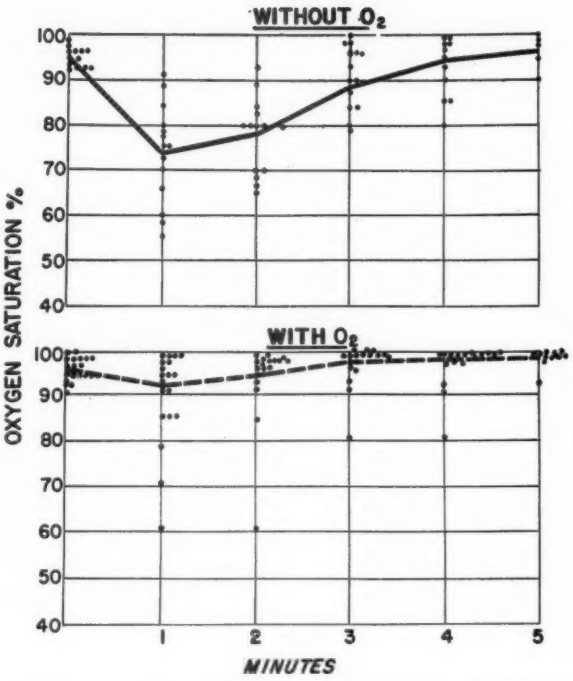

FIG. 1. Arterial Oxygen Saturation Following Electroshock Therapy.

electroshock therapy is often administered by individuals who lack training in resuscitation, who do not have suitable equipment, and who are unable properly to utilize a complicated resuscitator even if it is present. A simple device for administering oxygen can, however, be used by every physician with a minimum of training.

The improvement in the patient's condition, evident both by clinical appearance and by oximeter readings, indicates that simple oxygen administration before and during convulsive therapy is a very worthwhile procedure. The average lowest arterial oxygen saturation is 65 per cent without oxygen administration and is raised to 90 per cent when oxygen inhalation is administered. The administration of oxygen is exceedingly simple and adds no more than two or three minutes to the time required for the treatment. The apparatus used for oxygen inhalation may also conveniently be of a type which can be used for artificial respiration if the necessity should arise.

SUMMARY

Small doses of pentothal sodium and succinylcholine were administered intravenously to

patients just prior to electroshock therapy. Convulsions of mild to moderate severity were obtained. Patients who did not receive oxygen inhalation prior to convulsions had marked and prolonged decreases in arterial oxygen saturation (average low readings were 65 per cent). Patients who inhaled oxygen for two to three minutes before and during electroshock therapy had minimal decreases in arterial oxygen saturation (average low readings were 90 per cent). To prevent anoxia, it is recommended that a patent airway be maintained, and that oxygen be administered before and during electroshock therapy.

RESUMEN

Se administraron dosis pequeñas de pentotal sódico y succinilcolina por vía intravenosa momentos antes de que los pacientes fueran sometidos a la terapia por electrochoque, obteniéndose convulsiones que variaban de medias a moderadamente severas.

Los pacientes que no recibieron oxígeno antes de las convulsiones presentaron un marcado y prolongado decrecimiento en la saturación arterial de oxígeno (promedio bajo de—65 por ciento).

Los pacientes que recibieron oxígeno por dos o tres minutos antes y durante la terapia por el choque, presentaron decrecimientos mínimos en la saturación arterial de oxígeno (promedio bajo—90 por ciento).

Para prevenir la anoxia se recomienda mantener viable las vías respiratorias y administrar el oxígeno antes y durante el tratamiento por electrochoque.

RESUME

Des faibles doses de pentothal sodique et de succinylcholine furent administrées par voie intraveineuse à des malades avant de subir traitement par l'électroshock. Des convulsions de sévérité faible ou modérée furent obtenues. Les malades ne recevant pas d'oxygène avant les convulsions accusèrent des baisses prolongées de leur saturation artérielle d'oxygène, la moyenne de baisse étant de 65 pour cent.

Les malades qui reçurent de l'oxygène pendant deux ou trois minutes avant et pendant le traitement par l'électroshock, accusèrent des baisses de la saturation artérielle d'oxygène plus réduites, avec une moyenne de 90 pour cent. Pour prévenir l'anoxie, il est recommandé de maintenir une voie d'air et d'administrer de l'oxygène avant et pendant le traitement par l'électroshock.

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Fellowship Awarded to Dr. Félix Martí-Ibáñez

The Journal of Clinical and Experimental Psychopathology is honored to report that its International Editor, Félix Martí-Ibáñez, M.D., was awarded a Fellowship by the American Medical Writers' Association at their annual meeting in St. Louis, Mo., on September 30, 1955. The Fellowship Certificate is presented with a citation which states, ". . . in recognition of high qualifications, personal and professional, and of established standing as a medical writer, journalist or publisher."

Dr. Martí-Ibáñez was recently awarded the Order of Carlos J. Finlay of Cuba and also elected Fellow of the New York Academy of Sciences.

The Capillary System in Patients with Psychiatric Disorders: Diminished Capillary Resistance as Shown by the Göthlin Positive Pressure Test

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Among the many physiologic studies made on psychiatric patients, particularly those with schizophrenia, considerable attention has been paid to the role of capillary structure[6, 19, 24, 31] and function.[1, 20, 22] In addition to such investigations, clinicians have referred to obvious manifestations of altered capillary permeability,[9, 20, 30] stressing skin temperature anomalies, dermatographism, acrocyanosis, and the peripheral edema characteristic especially of catatonic schizophrenic patients.

The present paper stemmed from an interest in the oxygen metabolism of schizophrenic and other psychiatrically disturbed patients,[16, 18] together with the fact that the capillary represents a final common pathway in transporting oxygen to tissues. It is recognized that anoxia greatly influences the permeability of capillaries,[7] as indeed do a variety of other nervous and hormonal influences,[3] and also that a number of conditions in which variations in capillary permeability occur are also associated with changes in capillary fragility, e.g. histamine,[2] histamine antagonists,[25] various internal diseases,[21] the menstrual cycle,[28] and environmental heat and cold.[32]

Recent additional evidence of the over-all importance of adrenal sugar corticoid activity in relation to capillary factors has been given by Robson and Duthie.[26] They showed that capillary resistance increases after a number of forms of stress and that, in a group of patients with rheumatoid arthritis, the capillary resistance increased with the exhibition of adrenocorticotropic hormone (ACTH), such an increase running parallel with the concurrent fall in the absolute eosinophil count. Robson and Duthie[27] conclude that the rise in resistance in response to stress is due to adrenocortical activity and that capillary-resistance estimates may be employed in the measurement of the response to stimulation of the adrenal cortex. This work has since been amply confirmed.[10–13] In reference to rheumatoid arthritis, it has also been found[17] that the capillary oxygen saturation levels undergo considerable variation with exacerbation and remission of the disease. These findings provide an additional rationale for the present paper since it is widely recognized that a defect in homeostatic response to stress exists in schizophrenia[8] and probably also in other forms of psychiatric disturbance.

METHOD AND CLINICAL MATERIAL

The Göthlin positive pressure capillary resistance test was employed on a total of 265 subjects. The petechiae were counted in the antecubital fossa under conditions suggested by Göthlin[4, 5] and standardized by Munro et al.[23] The counts were expressed in absolute terms of frequency of occurrence so that a differential incidence could be obtained for the varying groups of psychiatric disorders studied.

The subjects included 120 healthy adult controls and 145 mentally sick patients. Nineteen of the controls were female students of the nursing or occupational therapy training schools, the remaining 101 were male psychologists and military personnel. All the members of the control group were in good physical and mental health and none had a history of psychiatric disability in the past, as far as could be ascertained. Their ages ranged between 19 and 47 (mean = 26.94) years for the females and between 18 and 39 (mean = 24.56) years for the males. All appeared well nourished within the spectrum of their somatotypes. The food for the civilians, at least for two of their four daily meals, came from the same source; it was cooked in the same kitchens and very closely resembled that for the civilian patient group. The army psychiatric patients, since they were not hospitalized, shared the same messing facilities as those of their healthy counterparts.

The contrasting group for comparison with these controls were 145 psychiatric patients, again dichotomized as to their source since 61 were ambulant army patients all sufficiently disturbed as to have been recommended for discharge from the service on psychiatric grounds by military psychiatrists, and the remaining 84 were hospitalized civilian patients, all similarly ambulant and in an acute phase of their disorder. The patient group comprised 10 cases of psychopathic personality, 51 cases of psychoneurosis (27 anxiety states and 24 hysterics), 22 cases of affective disorder (depression), 55 cases of schizophrenia, and 7 cases of idiopathic epilepsy. The ages of the patients lay between 16 and 65, with a mean of 27.39 years. Ninety-six of the patients were males (including all the military personnel), the remaining 49 were females.

No effort was made to ascertain the menstrual status of the female patients at the time of investigation. Since it is known that this factor influences the results of the Göthlin test, each of the female controls was questioned on this point and it was found that 2 of the 19 were actually menstruating when tested. The results were included along with the rest and probably account for the greater standard deviations found in this sex group as compared with the male sample (table I).

Statistical evaluations were made by the analysis of variance technique since this enabled the sampling error to be weighed along with the differences between the means. The appropriate version of the *t* test was also employed for certain intergroup differences.

RESULTS: INFLUENCE OF PSYCHIATRIC DIAGNOSIS

Table II shows that an excess of petechiae is produced by the positive pressure method of estimating capillary resistance in psychiatric patients as compared with the numbers appearing in members of the healthy control group. Eight petechiae per prepared field has been

TABLE I

Statistical Analysis of Possible Influence of the Sex Variable on Incidence of Petechiae

Sex	Diagnosis	N	Mean no. petechiae	s	Analysis of variance
Males	Healthy controls	101	2.406	3.761	
	Psychopathy	9	2.556	2.833	
	Anxiety state	26	3.920	4.161	
	Hysteria	21	2.239	3.872	
	Depression	10	6.400	10.967	
	Schizophrenia	28	6.750	6.077	1. Diagnostic group + sex
	Epilepsy	2	24.500	7.778	F ratio: 4.482
					d.f.: 13 and 251
Females	Healthy controls	19	1.842	4.429	P: <.001
	Psychopathy	1	2.000	—	η^2: .182
	Anxiety state	1	1.000	—	
	Hysteria	3	16.667	21.733	
	Depression	12	8.250	12.241	
	Schizophrenia	27	10.296	17.033	
	Epilepsy	5	14.800	21.719	
Male	Sex only	197	3.655	5.425	2. Sex alone
Female		68	7.926	14.458	F ratio: 12.767
					d.f.: 1 and 263
					P: <.001
					η^2: .046
Diagnosis only	Healthy controls	120	2.317	4.037	3. Diagnosis alone
	Psychopathy	10	2.500	2.677	F ratio: 7.005
	Anxiety state	27	3.926	4.122	d.f.: 6 and 258
	Hysteria	24	4.042	8.947	P: <.001
	Depression	22	7.409	11.442	η^2: .141
	Schizophrenia	55	8.491	12.781	
	Epilepsy	7	17.571	18.627	

4. Addition of sex to diagnosis* F ratio: 1.965; P is N.S.

* Although sex is a significant vector, its addition to the differentiating variable of diagnosis fails to reach the 5 per cent probability level.

widely accepted as the critical threshold for normality when the test was employed for the detection of subclinical scorbutic states. While this criterion is satisfied by the vast majority of the mentally healthy controls (and also by the psychopathic patients), this is by no means the case in the remaining psychiatric conditions.

The mean numbers of petechiae appearing in the subjects of each diagnostic group is given in the third section of table I where it may be seen that psychiatric diagnosis alone is sufficient to differentiate statistically and significantly the incidence of petechiae. And it is of interest to note that the threshold of capillary rupture is progressively lowered as the intensity of psychiatric symptoms tends toward an ever more grave mental state.

In order to bring into focus the principal psychiatric disorders contributing to this result, a plot was made of the scatter of the means. This showed that the various diagnostic categories tended sensibly to group into pairs, and resulted in controls and psychopaths, anxiety states and hysterics, depressives and schizophrenics differing little within the pairs but considerably between them. The solitary epileptic group was well separated from its nearest neighbor. This grouping pattern further suggested that individuals tended to behave in

terms of their major diagnostic group pattern of mental disturbance, i.e., as psychiatrically healthy, or as neurotics, psychotics, or epileptics. This hypothesis was tested by means of Student's large sample t test. It was found that a highly significant difference existed between the controls and the massed abnormal group (t = 4.42; P <.001); but that the small differences between the controls and psychopaths (t = .103; P is N.S.), the anxiety states and hysterics (t = .08; P is N.S.), and the depressives and schizophrenics (t = .407; P is N.S.) were not significant.

THE INFLUENCE OF AGE

Table III gives the data resulting in a two-way analysis of variance in which the influence of chronologic age in three age ranges is compared with that of diagnostic grouping. It will be seen that, of the 12 per cent of the variance for which diagnosis and age is responsible, more than half is due to diagnostic factors and only 4 per cent of the variance results from the factor of age. Nonetheless, the addition of age to diagnosis reaches the 1 per cent level of statistical significance.

Inspection of the means given in table III indicates that these differences accrue principally from the psychiatrically disturbed groups, the means of the controls showing little variation in the three age ranges studied. For this reason, and because the total age range of the controls was considerably less than that of the patients (18 to 47, and 16 to 65 years, respectively), a second two-way analysis of variance was computed in which six groups of a five year age interval (15 to 19, by 5 years, to 40 to 44 years) were investigated for the means of the controls and massed mental patients, the 8 patients over the age of 44 and for whom no comparable control subject existed for comparison being excluded from the evaluation procedure. The analysis of variance on this selected material yielded an F ratio of 2.179 (P = .05) for the influence of diagnostic group and age, and accounted for some 10 per cent of the variance; an F ratio of 1.236 (P is N.S.) for age alone; an F ratio of 12.974 (P < .001) for diagnostic group alone which amounted to 5 per cent of the variance; and, for the addition of age to diagnosis, the F ratio was 1.094 (P is N.S.).

Comment. From the results of these two paired analyses of variance it seems legitimate

TABLE II

Scatter of Petechiae Showers during Göthlin Test

Diagnostic group	N	Percentage of subjects in each diagnostic group with these numbers of petechiae appearing during positive pressure test					
		0*	1–8*	9–24	25–39	40–54	55–70
Healthy controls	120	46	50	4	—	—	—
Psychopathy	10	40	60	—	—	—	—
Anxiety state	27	26	59	15	—	—	—
Hysteria	24	54	34	8	—	4	—
Depression	22	18	64	10	4	4	—
Schizophrenia	55	18	54	24	—	—	4
Epilepsy	7	—	43	29	4	—	4

* The massed percentages of the 0 to 8 categories represent the critical threshold for "normality."

TABLE III

Evaluation of Influence of the Age Variable on Incidence of Petechiae in Terms of the Mental Health-Mental Illness Dichotomy

Age range (years)	Diagnostic groups	N	Mean no. petechiae	s	Analysis of variance
Up to 19	Controls	14	3.714	5.915	1. Diagnostic group + age
	Mental patients	25	3.760	3.850	F ratio: 6.878
20–34	Controls	90	2.200	3.914	d.f.: 5 and 259
	Mental patients	85	5.671	9.288	P: <.001
35 and over	Controls	16	1.750	2.145	η^2: .117
	Mental patients	35	11.486	16.076	
Up to 19	Combined groups	39	3.744	4.621	2. Age alone
		175	3.863	7.252	F ratio: 5.679
		51	8.431	14.061	d.f.: 2 and 262
					P: .01
					η^2: .041
All ages	Controls	120	2.317	4.038	3. Diagnosis alone
	Mental patients	145	6.745	11.023	F ratio: 17.418
					d.f.: 1 and 263
					P: <.001
					η^2: .062
					4. Addition of age to diagnosis* F ratio: 4.041; P: .01

* Age is a significant factor in the pathophysiology of psychiatric disturbance, but see text.

to conclude that chronologic age is a significant variable in the positive pressure test for capillary fragility, but only in patients suffering from a severe form of mental disorder. Capillary resistance appears to lessen with advancing age in such patients, but there is no evidence that age plays a part in determining the fragility threshold either below the age of 44 years or in subjects both mentally healthy or with minor forms of psychiatric disturbance.

THE INFLUENCE OF SEX

The sex variable has already been referred to insofar as the potentiating effects of menstruation on capillary fragility are concerned. It was obviously desirable, both in view of this fact and of the displaced sex ratio seen principally in the control group, that the influence of sex be investigated as thoroughly as possible.

Table I gives the results of a two-way analysis of variance on the relative importance of diagnostic grouping and sex in terms of the mean petechial counts of the 265 subjects investigated. It shows that sex indeed acts as a highly significant differentiating variable ($P < .001$), but the analysis also shows that with respect to the over-riding importance of psychiatric diagnosis, sex differences may be discounted. Over 18 per cent of the variance was found to be due to the combination of these two factors, diagnosis alone accounting for 14.1 per cent of this, and sex alone for only 4.6 per cent of the variance. The addition of sex to diagnosis yielded an F ratio that did not reach the level of statistical significance.

Another approach to the possible influence of sex was given by comparing the mean numbers of petechiae found in those psychotic disorders in which there was practically sex

equality. Combining the depressive and schizophrenic patients gave a total of 77 cases of whom 38 were male and 39 female. The mean number of petechiae for the males was 6.66 and for the females 9.67, a difference in the expected direction. A test of significance on these findings gave a t of 1.12 which, with N—2 or 75 degrees of freedom, is not significant ($P > .05$).

THE INFLUENCE OF DIET AND WAY OF LIFE

With such a mass of literature attempting to link differences in capillary resistance to dietary factors, various supplementary food factors, and diseases ranging from scurvy to diabetes mellitus (not always with positive or convincing results), it seemed relevant to undertake such an analysis in the present investigation.

With this in mind it was fortunate that our method of sampling included a dichotomy of civilian and army material in both control and patient groups, although it must also be added that this latter differentiation did not apply to the more severely disturbed patients, all of whom were civilians and hospitalized.

As has already been explained, the diets of army personnel and civilians were similar for control and patient groups, but differed widely both in choice and content between the two sources of clinical material. As different also were the "ways of life" of the army and civilian groups; the former lived mainly in the open air, stemmed from the socio-economic background of the lower and lower-middle classes, and represented in the main the skilled artisan or tradesman; the latter included many sedentary "white collar" office workers, housewives, technicians, and professional people and stemmed from the professional and middle classes.

The investigation of the possible influence of the factors of diet and way of life was made solely on the control, neurotic, and depressive groups of subjects, since only representatives of both army and civilian samples were included. Table IV gives the results of a paired analysis of variance comparing the effects of these factors with that of diagnosis. It is clear that this differentiation is a major one in influencing the results. Even here, however, its influence is subservient to that of psychiatric diagnosis for, of the 15.5 of the variance for which the diagnostic group and diet are jointly responsible, the contribution of diagnosis alone amounted, at 7 per cent, to nearly half of this, while that of diet, although exerting a significant influence statistically, contributed but 4.5 per cent to the variance.

DISCUSSION

No subject, either in the control or psychiatrically disturbed group, in the series currently investigated suffered at the time of examination from demonstrable scurvy, showed any evidence of a subclinical scorbutic state, or any other physical disorder associated with a known hemorrhagic diathesis. All were, in fact, apparently physically healthy when the tests were carried out. It is also important to emphasize that the psychotic and epileptic groups (who revealed the lowest capillary-resistance thresholds) were not chronic institutionalized mental hospital patients, but were patients undergoing active investigation and treatment at a psychiatric center. All patients were in reasonably active or early phases of their illness.

TABLE IV

Differential Influence of Diet and Way of Life on Psychiatric Diagnosis as Factors Determining Capillary Resistance to the Göthlin Positive Pressure Test

Subjects	Diagnosis	N	Mean no. petechiae	s	Analysis of variance
Army	Controls	97	2.454	3.801	1. Diagnostic groups + diet
	Psychoneurotics	46	3.000	3.807	F ratio: 6.865
	Depressives	5	2.000	2.915	d.f.: 5 and 187
Civilians	Controls	23	1.739	4.924	P: <.001
	Psychoneurotics	5	13.000	17.176	η^2: .155
	Depressives	17	9.000	12.565	
Army	All groups	148	2.608	3.774	2. Diet alone
Civilians		45	5.733	10.715	F ratio: 9.008
					d.f.: 1 and 191
					P: .01
					η^2: .045
All subjects	Controls	120	2.317	4.037	3. Diagnosis alone
	Psychoneurotics	51	3.980	6.757	F ratio: 6.962
	Depressives	22	7.409	11.442	d.f.: 2 and 190
					P: <.001
					η^2: .069

4. Addition of diet to diagnosis F ratio: 6.414; P: <.001

There seems little doubt but that the Göthlin test provides an estimate of the bursting threshold of the walls of the cutaneous capillaries when their intraluminar pressure is raised by a standardized technique. There also exists undisputable structural evidence[19, 24] for the occurrence of stellate or punctate hemorrhages lying outside the capillary walls in patients with affective disorders, schizophrenia, and epilepsy examined at rest by capillary microscopy of the tapetum or fingernail fold.

Finally it is relevant to refer to the findings of Lazarus et al[23] who demonstrated a striking lack of correspondence between the results of capillary fragility tests and dietary factors. These workers reported a poor correlation between the incidence of scurvy and the negative pressure capillary resistance test, and with the positive pressure Göthlin test showed that the exhibition of ascorbic acid, while reversing the cl nical evidence of scurvy in a selected sample of these cases, restored only 3 of the 14 cases investigated to a normal capillary-fragility level. Hesperidin, rose hip extract, and orange-peel powder similarly had little effect in reversing the increased capillary fragility.

Our present findings are in agreement with the conclusions of Lazarus and his co-workers who state that "a constitutional capillary weakness is probably present in a small proportion of the population." The influence of emotion has already been demonstrated.[14] Our results suggest that psychiatric instability may also exist among the factors associated with such constitutional weakness.

SUMMARY

1. The Göthlin positive pressure test was employed to study the capillary resistance of 120 healthy control subjects and 145 physically healthy psychiatric patients classified into

six diagnostic groups. Statistical procedures were undertaken to evaluate the differential influences of diagnostic group, age, sex, diet, and way of life in determining the test results.

2. It was found that all the ancillary factors investigated were subservient to psychiatric diagnosis in determining the relative capillary fragility threshold.

3. The mean number of petechiae produced by the test was significantly greater ($P < .001$) for the mental patients (mean = 6.745) than for the controls (mean = 2.317). The mean numbers of petechiae tended to increase progressively as the diagnosis indicated an ever more severe psychiatric state. They were maximal in affective disorder, schizophrenia, and epilepsy.

4. The implications of these findings are discussed.

RESUMEN

Se empleó la prueba de presión de Göthlin para estudiar la resistencia capilar de 120 individuos sanos que sirvieron como testigo y 145 físicamente sanos, clasificados psiquiátricamente en seis grupos diagnósticos. Los procedimientos estadísticos que se realizaron para evaluar las influencias diferenciales de diagnóstico y determinar los resultados del ensayo, comprendieron la edad, sexo, dieta y modo de vida.

Se observó que todos los factores secundarios investigados estaban subordinados al diagnóstico psiquiátrico en la determinación del umbral de la fragilidad capilar relativa.

El promedio de petequias producido por la prueba fue significativamente mayor (P < 001) para los enfermos mentales (medio = 6.745) que para los testigo (medio = 2.317). El promedio de petequias tendía a aumentar progresivamente al indicar el diagnóstico una epilepsia psiquiátrica más grave.

Se estudian las deducciones basadas en estos hallazgos.

RESUME

Le test de pression de Göthlin fut employé pour étudier la résistance capillaire de 120 sujets normaux de contrôle, et 145 malades psychiâtriques en bonne santé et classés dans de groupes diagnostiques divers. Les méthodes de statistique furent employées pour différencier les facteurs de diagnostique, âge, sexe, nourriture, et façon de vivre. Il a été trouvé que le nombre de pétéchies produites par le test était plus élevé pour les malades que pour le groupe de contrôle; ce nombre avait tendance à augmenter en proportion avec la sévérité du diagnostique de l'état psychiâtrique, et il était au maximum dans les désordres affectifs, la schizophrénie et l'épilepsie.

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Some Psychologic Correlates of Neoplastic Disease: A Preliminary Report*

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The concept that personality factors may play a part in the pathogenesis of cancer was first clearly stated by Snow in 1883.[12] Previous to this time, Walshe[17] and others, influenced by the theory of humors, had posed the question. Snow explored this problem through clinical interviews with his cancer patients, and published the first statistical study in this area. Later, in the 19th century, Sir James Paget[10] forcefully stated his opinion of psychological factors and cancer:

> The cases are so frequent in which deep anxiety, deferred hope and disappointment are quickly followed by the growth and increase of cancer, that we can hardly doubt that mental depression is a weighty additive to the other influences favoring the development of the cancerous constitution.

It is not our purpose here to review the extensive literature in this field. Suffice it to say that the concept largely vanished from medical writing at about the turn of the century. References to it became much less frequent, although its importance was stressed in occasional books and papers, such as Willy Meyer's *Cancer*.[9] In 1926, an intensive psychologic investigation was made on 100 cancer patients by Elida Evans,[5] but little more was reported until 1951 when the study of Tarlau and Smalheiser[16] was published.

Since that date however, seven papers have been written exploring this field.[1–4, 6, 14, 16] These are provocative and stimulating, although no clear and definitive relationships have emerged. Further work is obviously needed here. The present study was initiated in an attempt to explore this area further. It was decided to administer a projective test to a group of patients with malignant tumors and to a control group. The protocols and interpretations of these tests would be compared and contrasted.

The projective device chosen for this study is the Worthington Personal History. This is a blank resembling a personnel form which the subject fills out. Items cover various areas such as family, school and occupational history, hobbies, interests, and aims. Responses are interpreted according to both their form and content. The frame of references used in the interpretation is essentially an orthodox psychoanalytic one, although some of the concepts of the Warner-Davis-Havighurst approach to social class in America are also used. The test is a fairly new one and not as widely known as the Rorschach and TAT. Nevertheless, various papers attest to its sensitivity, reliability, and validity,[7, 8, 11, 13, 15, 18] and it has certain very definite advantages for the particular type of research undertaken

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here. It rarely produces anxiety or emotional upset, as it is not as threatening to the patient with cancer as the better known projective devices frequently seem to be. Patients tend to accept the idea that it is an "information-gathering form which we use so that we can learn more about you and be able to do a better job."*

The Personal History was administered to 152 patients with malignant tumors, and 125 patients with other or no known disease (table I). The 12,000 protocols obtained in the course of the validation studies of the Personal History and its use as an instrument for personnel guidance were also surveyed and appeared to be in essential agreement with our control group.†

The subjects used in this study, as judged by occupational status, were nearly all upper-lower or lower-middle class.‡

Each protocol was interpreted and a description of the patient's personality structure was written. This description included estimations of major cathexes, expression of hostility, social mobility, major ego defenses used, ego strength, and intelligence. Hypotheses were also drawn concerning unconscious fantasy material and personality development.

The personality descriptions were then divided into the two groups of patients, those "with malignant tumors" and those "with other or no known disease." The protocols were then scanned visually in each group in an attempt to see whether any factors could be found which occurred frequently in one group, and less commonly in the others. When a factor seemed to fulfill this requirement, all protocols were re-examined specifically in this area and tabulations made of the number of records in which it was found.

FINDINGS

Three factors were frequently found in the protocols of patients with malignant neoplasms, and statistically less frequently in the protocols of the other group. The findings

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* Further information on this projective device may be obtained by writing to the authors.

† An additional 48 patients with neoplastic disease were administered the Personal History Test, but the results of these are not reported here. This is because their responses were so scanty on the test form—they left many blank spaces—that no valid interpretations could be made. This type of behavior, leaving large sections of the form blank, is an extremely rare type of response in healthy subjects in our experience. It is our impression that the frequency of this response in this group is largely due to the psychologic depression that so often accompanies the patient's knowledge of his diagnosis.

‡ How many of these patients "knew" their diagnosis consciously is not known by the writers. The majority of patients on a neoplastic service or in a tumor clinic do not admit to having a malignancy. Patients do frequently speak of their "arthritis" or "rheumatism," and even occasionally of a "lump" or "growth." Few however, speak of "cancer." A patient talking to one of the writers, spoke of what a good hospital he was in at present. "The place I used to go, . . . Hospital, was terrible. They tried to scare me to death. Told me I had cancer or something. Here they treat me right and I'm getting better."

It is the author's impression that the great majority of patients with neoplasms have, at one time or another, had a knowledge of their diagnosis, but that this is usually repressed or suppressed. It was felt unwise, in the present study, however, to probe into this area in any way. Therefore the patient's knowledge of his diagnosis is an uncontrolled variable in this research.

were: (1) loss of an important relationship before the diagnosis of the tumor; (2) inability to express hostile feelings towards other people; and (3) tension over the death of a parent, often an event that had occurred far in the past.

The first of these factors appears to be a pattern rather than a single unit. The individual has had a relationship with some other person (or group of persons) that was of major importance to him. Although he functioned well in other life areas, he expressed most of his psychic (and usually physical) energy through this one. It was the type of relationship that was "natural" for this personality in the sense that its existence provided minimum anxiety and maximum satisfaction insofar as the needs of his personality structure could be gauged from the protocol. For some reason, this relationship ended. No equally satisfactory substitute cathexis was found. Fifty-six per cent of our protocols (85) showed this loss in the family area in relation to children or spouse. Sixteen per cent (24) showed it in relation to peer groups or to a loss in occupational areas. This type of lost cathexis was observed in 12 per cent (15) of our control records and a total of 72 per cent (109) of our experimental records.

The second factor, more common in the test records of the malignancy patients than the controls, is the inability to express hostile feelings towards other people. They have aggressive feelings, often quite strong, but are blocked in their ability to verbalize them or to express them in other ways. This was observed in 47 per cent (71) of the malignancy records and 25 per cent (31) of the controls.

The third differentiating factor was tension over the death of a parent. There is apparently guilt and/or anxiety concerning this death even though it often had occurred many years before the administration of the test. This was observed in 38 per cent (58) of the protocols of patients with malignant tumors and 11 per cent (13) of the control records.

In order to check these hypotheses further, 28 new records were obtained in such a way that the writers did not know which of them had been filled out by patients with malignant tumors and which had been filled out by cancer-free individuals. None contained clues in the "health" area of the blank or elsewhere that would reveal the diagnosis. All were ob-

TABLE I
Patients Evaluated in This Study

Location of malignancy	Number of patients		
	Male	Female	Total
Breast	0	33	33
Colon and rectum	16	10	26
Buccal area	12	4	16
Skin	8	5	13
Lung	11	0	11
Stomach	6	2	8
Uterus	0	8	8
Hodgkins disease	6	1	7
Cervix	0	6	6
Miscellaneous	18	6	24
Total number of patients	77	75	152

tained at an outpatient clinic by a receptionist. The writers knew only that "some" of the records had been filled out by patients with malignancies.

The group of 28 records included 15 protocols of cancerous patients and 13 records of controls. The control group contained 5 individuals with no known disease, 3 hyperthyroid persons, 1 person each with arteriosclerosis, allergy, psoriasis, dermatitis, and obesity. The malignancies of the patients with cancer included 4 skin and 3 breast cancers, and 1 each of cancer of the thyroid, rectum, tongue, stomach, colon, uterus, cervix and lymph nodes. The writers attempted to predict which patients had a neoplastic disease and which did not, solely from the presence or absence of the three psychologic factors mentioned previously. Correct predictions were made in 24 of the 28 cases. (Three noncancerous patients, 1 with arteriosclerosis, 1 with allergy, and 1 with hyperthyroidism, were predicted as "cancer," and 1 patient with cancer of the skin was predicted as "noncancer.") Statistically, the probability that this number of correct predictions would occur by chance is less than one in a thousand ($P = .0001$).

DISCUSSION

We plan to discuss each of our findings separately. It will be the problem of further investigation to determine their interrelationships.

The Loss of a Relationship Before the Diagnosis of the Tumor. A few examples of this pattern may perhaps clarify it.

One patient had found in his occupation his major psychic and physical energy outlet. His relationship with his customers was the cahtexis of most importance to him. Retirement was forced on him because of company policy. He now seeks new contacts, but has no training in how to achieve them. He would like to take another job or return to his old one, but cannot do this because of his age.

Another patient had devoted her life to her family. Raising her children had been her major life task. All her other relationships were essentially superficial and peripheral to this one. Her children have grown up and do not need her any more. She no longer has any one to whom she can "give" emotionally to the degree she needs.

Another patient is married and, for a time, the marriage provided her major life satisfactions. Contact with her spouse was of utmost importance. Then the marriage deteriorated. The emotional relationship is no longer present, although the physical presence of the spouse may or may not still exist.

Another form of the pattern is seen in the protocols of the patient who had adapted very well to a high school or college situation. Warm cathexes were made to others in the same environment, and the person felt himself to be a warmly accepted member of an ingroup. After graduation, he found he could no longer relate to others in the quite different psychologic atmosphere of the business world. Various attempts were made to re-create or return to the scholastic situation but these failed. In spite of very strong attempts, his social techniques were not adequate to enable him again to establish warm relationships with others.

A few sample case histories may serve to clarify this pattern. It should be understood

that these case histories are reconstructions from projective test protocols, and the patients themselves had not been interviewed by these writers.

1) A 54 year old female with carcinoma of the breast was first diagnosed in 1944. Marked tension was shown over her husband's sudden and unexpected death in 1941. She is still confused and anxious over her new marital status as a "single widow." Unconsciously, she equates her father's death, which occurred shortly after her marriage, with her husband's, and feels doubly deserted. Her daughter is now married and has become independent, and the mother is now dependent on the daughter. This dependency is far from as satisfying and complete as was her earlier dependency, first on her father, then on her husband. She has no real outlet for her need to relate to others. As a "housewife" she found security and a role which suited her personality well. Her interests were restricted to the family. She now feels isolated and lonely. She cannot express hostility and denies, for example, that any school subjects were "least liked." The façade she presents to the world is pleasant and "sweet." She does not think of the future, but lives in a present that is unsatisfying and dull. Without an older male on whom she can lean, she feels paralyzed. Time stopped for her when her husband died.

2) A 60 year old female with adenocarcinoma of the sigmoid colon was widowed in 1933 and has apparently accepted this. (There is little psychologic tension shown over this in the record.) She listed no children in the appropriate spaces, but stated that her married daughter should be notified in case of emergency. Generally, one might say that she had lost the parental role that was her major function for most of her adult life. The spaces calling for adult life history were nearly all blank except for a statement that in her "business experience" she least enjoyed "dishwashing." In the space calling for membership in social or civic organizations, she stated "none at present."

She does not accept her hostility, and when asked about "least liked" school subjects, she replied "none." Her plans for the future are to "try to be useful."

The test showed that this is an individual with severe anomie, who had lost her *raison d'être* as a person. She would like to find new ways to relate to others but has no idea how to go about it. A rich inner life and high intelligence had become paralyzed due to her isolation from others. She had been unable to fill the gap in her life left by her children's growing up.

3) This is a 21 year old male with Hodgkins Disease which developed one and a half years after he left high school. He is highly intelligent with a good deal of energy and drive. In high school, he was able to relate well to other students through intellectual pursuits. He was a member of the library, camera, and stamp clubs, and held several school offices of a kind which demanded intelligent work, e.g. class secretary. On leaving school, he found it necessary to take a job as a truck driver. He supports his mother (the father died when he was six years old, and the test protocol shows tension concerning his death). His job pays well. His present hobbies include activities that need good intellectual endowment and scientific curiosity. He has little ability to relate to others except through intellectual activities. He does not easily express aggression towards people, but can express it toward things.

At present, he does not enjoy his work because of "dissimilarity of interests with fellow workers." He is cut off from his relationships with his former high school friends due to his job, and probably because the majority of those who were his friends have gone to college. He feels alone and somewhat isolated. He is attempting to find new ways of relating to others, but so far has not been successful.

4) A 50 year old female with cancer of the uterus was married in 1926, but now has lost all emotional contact with her spouse. She now regards the 20 years she spent as a "housewife" as wasted years, and regrets them. She has no warm cathexes to people at present, and her only hobby or interest is that "she likes to walk."

She is of average intelligence. As a young adult, she spent all her emotional energy on her husband and children. The relationship was lost and she does not think of them much at the present time. Her intelligence is still available to her in her job, but outside of working hours (she is night clerk in an institution), her perceptions are dulled and she responds little to others or to things. Literally, the thing she enjoys least is "reading." She wishes no more stimulation from the outside world than the necessary minimum. She has no future plans

or interests. Her only relation with people is in the quick and superficial contacts she makes in her work. Even by her choice of job, she has cut herself off from social relationships with others. She is unable to express any hostility toward other people.

A factor very similar to this had been described by Elida Evans in her *A Psychological Study of Cancer*,[5] and, more recently, by Greene.[6] Evans reported on 100 individuals who had cancer, and who were evaluated through intensive psychotherapy. She found that these patients had lost an intense cathexis during adulthood, and inferred that psychic energy had been turned inward, expressed itself through the body, and had been one of the etiological factors leading to the appearance of the neoplasm.

Inability to Express Hostility. It was repeatedly noted in the protocols of the malignancy patients that, when asked what aspects of the various jobs they had held they disliked, the response was "none," "liked everything," or they simply left the space blank. Similar responses were observed in the space where "least liked" school subjects were asked for. (Such responses by themselves, of course, have no more validity than do single responses given on the Rorschach or in a psychiatric interview. The entire test picture must be in agreement before such a personality factor can be hypothesized.) We did find in these records what appeared to be a life-long pattern of the repression and/or suppression of aggressive feelings. In the absence of studies of the premorbid personalities of cancer patients, however, it is impossible to be certain that this hypothesized aspect of the personality was a life pattern rather than a resultant of the disease or knowledge of it.

The inability to express hostility has also been previously reported as being statistically associated with the diagnosis of neoplastic disease. Bacon et al,[1] using an interview technique; Butler,[3] also using psychiatric interviews; and Cobb[4] who used interviews, questionnaires, and projective techniques, all observed this factor.

Tension Concerning the Death of a Parent. In the Personal History Test, there is a space calling for data on the health or year of death of parents. Repeatedly, we observed our malignancy subjects showing strong tension over a parent's death. They responded with heavy retracings, erasures, irrelevant and uncalled for data (such as the reason for the death), and generally indicated tension in this area. In other parts of the test, they also frequently responded in ways showing their tension over the deceased parent.

To our knowledge, this specific finding has not been previously reported. However, three other papers (Evans,[5] Tarlau and Smalheiser,[16] and Bacon et al[1]) have observed strong unresolved tensions concerning a parental figure as characteristic of their cancer patients. It is our belief that, although all four reports (the three mentioned above and ours) phrase this problem area differently, we are reporting the same factor observed with different techniques. Tension over the relationship with a parental figure leads frequently to unresolved problems of guilt and anxiety in the event of the parent's death.

SUMMARY

Personality patterns of 152 patients with neoplastic disease were studied by means of a projective test, the Worthington Personal History. Three factors were found which differ-

entiated the protocols of the cancer patients and those of the controls. These were (1) the loss of an important relationship before the diagnosis of cancer; (2) an inability to express hostile feelings; and (3) tension over the death of a parent, usually an event which had occurred many years previously.

RESUMEN

Por medio de una prueba proyectiva, o sea el método de la Historia Personal, de Worthington, se llevó a cabo un estudio de la personalidad de 152 pacientes de enfermedades neoplásticas, hallándose que tres factores diferenciaban los pacientes de cáncer de aquéllos que sirvieron como testigo:

1. Pérdida de una importante relación personal anterior al diagnóstico de cáncer;
2. Incapacidad para expresar sentimientos de hostilidad;
3. Tensión producida por la muerte de uno de los padres, acontecimiento generalmente acaecido con muchos años de anterioridad.

RESUME

La personnalité de 152 malades atteints de maladie de néoplasme fut étudiée en utilisant le "test de Worthington." Les trois facteurs suivants ont différencié les protocoles des malades atteints du cancer de ceux du groupe de contrôle:

1. La perte d'une relation sociale importante précédant le diagnostique du cancer;
2. Incapacité d'exprimer des sentiments d'hostilité;
3. Tension au sujet d'un parent, généralement décédé depuis plusieurs années.

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Clinical Psychologic Studies of Auto Thieves

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This study is a continuation, using case studies, of a mass statistical research by Wattenberg and Balistrieri[5] who reported that auto theft by juveniles in Detroit was relatively more prevalent among white youngsters living in good neighborhoods than were other offenses. In a comparison between the 230 white boys charged with auto theft and the 2,544 others in trouble with the Detroit police in 1948, it was noted: "They had good peer-group relationships, came from relatively more favored neighborhoods, but were otherwise similar to juvenile offenders in general."

In discussing these results, it was surmised that these boys, as reflected in the statistical data, seemed to fit into the pattern of "socialized delinquents" as described by Hewitt and Jenkins[3] or the "adaptive personality" as described by Havighurst and Taba.[2] To the extent that this was true, it could be hypothesized that they tended to have a personality structure that permitted them to respond strongly to the value systems of immediate associates but weakly to the principles valued by adults or "society in general." If this were true, then they could be expected, according to the authors, to come from homes where children's activities were poorly supervised. In Freudian terms, they would have "weak" superegos, in the formation of which identification with parental figures was somewhat light. This would imply that they would have a relatively low level of anxiety derived from super-ego-id conflict, although other types of anxiety might be present. It should be noted that Topping[4] on the basis of psychoanalytic studies had reported the overt behavior of "pseudo-social" boys as arising out of troubled parent-child relationships. Her hypothesis would lead one to expect strong anxieties.

All this is speculation based upon mass statistical findings. However, it was recognized that the types of items which lend themselves to counting for the purpose of statistical surveys often do not fall into psychologic categories. Accordingly, it was decided to undertake a series of case studies to discover the extent to which the hypothesized general relationships held true for individuals.

PROCEDURE

To this end, arrangements were made for collecting a wide variety of information on all white boys who, during 1951 and 1952, met both of the following two criteria.

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1. Boy detained by police for auto theft.

2. Boy resides in the two police precincts of Northwest Detroit, an area of middle class socio-economic status. Most fathers earned their livings in white collar or skilled trades occupations. (The study group did not include residents of a public housing project or a zone of one-half mile surrounding that project.)

All such boys were interviewed while in detention. At that time, they were given the Rosenzweig Picture-Frustration test and the Rorschach test. Their parents were interviewed. Contact was also made with their schools, past and present, to secure data from the school records and from the recollections of teachers and counsellors. For those boys who had previously been studied by the Clinic for Child Study of the Wayne County Juvenile Court, additional extensive information was available. To round out the picture of the family, police files relating to the father were checked.* The data gathered were compiled in the form of case histories; within the time limits of the research, a total of 25 boys were studied.

FINDINGS

Before presenting specific case studies, it will help orient the reader if the over-all trends found within the group are presented. In table I appear those data related to the family situation that were obtained for all 25 cases.

As would be expected from the nature of their offense, these boys were in the upper age level of the Juvenile Court's jurisdiction: 1 was 13 years, 7 months; 4 were 14 years; 10, 15 years; and 10, 16 years.

It will be noted that there is a great range in the age of their parents. The age of fathers ranges from 37 to 60; the median is 46. For mothers the range is from 33 to 58; the median is 41.

As indicated by the character of the neighborhood, most fathers held steady jobs with good pay. Two owned their own businesses; 4 held white collar or supervisory positions; the remainder with but 1 exception were skilled workers. In 12 cases the mother worked. (Approximately 25 per cent of all boys known to the Detroit police in 1948 had working mothers.)

It will be noted that there is not 1 only child in the group. (Previous studies indicated that approximately ten per cent of all Detroit children are without siblings; among boys with police contact, five per cent is typical.) As far as ordinal position is concerned, 8 were the oldest sibling; 8 were the youngest; 9 occupied intermediate positions.

In terms of these vital statistics, then, the group was not markedly different from delinquents in general. The percentage of only children was low; the percentage of working mothers was high.

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* The elaborate information-gathering pattern was made possible through the cooperation of several officials, to whom the present authors wish to express appreciation for assistance: Judge George Edwards, of the Wayne County Juvenile Court; Senior Inspector Sanford Shoults and Inspector Ralph Baker, of the Detroit Police Department; and Superintendent Arthur Dondineau, of the Detroit Public Schools.

In table II appear findings on a number of ratings made from the protocols. Strikingly, 15 of the group were noted to be large for their ages. On the basis of visits to the home in which mothers were interviewed, present mother-son relationships appeared to be good, on the surface at least. In only 4 cases was serious friction noted. This was not true for sibling relationships. In 9 cases marked tension was apparent.

The reaction of the boys to their offenses showed a wide range, with no response being frequent enough to be called typical. This is not surprising in view of the fact, as recorded in table III, that many had relatively long records as juvenile delinquents. The ages at which they first came to police attention ranged from 10 years, 3 months to 16 years, 8 months, with a median at 14 years, 2 months. Their number of arrests ranged from 1 to 13; the median was five. The total number of arrests for auto theft ranged from one to five; the median was two. It can be seen, then, that this is not a group of episodic delinquents, nor of youngsters accidentally apprehended in an act due to an undiagnostic lapse of controls. Their auto thefts are part of a consistent pattern.

The findings of the Wattenberg and Balistrieri study[5] as to present peer-group relationships was verified, but with an unexpected modification. Without exception every one of these boys had engaged in either auto theft or other offenses as part of a gang or with a companion. Case 10 was the only one whose auto thefts were solitary forays, but he had

TABLE I

Family Data of 25 Boys Involved in Auto Theft

Case no.	Age yr., mo.	Father's age	Mother's age	Father's occupation	Mother's occupation	No. of siblings	Sibling no.
1	16 0	55	58	Machinist	Housewife	2	2
2	15 8	41	41	Printer	Housewife	2	2
3	15 4	41	31†	Salesman	Secretary	3	2
4	16 6	39	42	Machinist	Saleslady	2	2
5	15 4	44	45	Self-employed (ill)	Nurse's aid	3	3
6	13 7	39	37	Laborer (moving co.)	Cleaning woman	5	1
7	16 6	54	45	Police official	Insurance sales	5	4
8	16 6	60	40†	Plant protection	Housewife	3	1
9	16 6	37	33	Dairy worker	Store clerk	2	1
10	15 3	51	24†	Trailer rentals	Housewife	2	1 (twin)
11	14 6	52*	49	Unknown	Portrait colorist	3	3
12	15 11	58	45	Foundry worker	Restaurant worker	6	6
13	15 0	41	39	Mechanic	Housewife	3	2
14	14 9	39	38	Utility man	Housewife	5	2
15	15 11	50	46	Tool and die worker	Inspector	2	2
16	15 8	Dead	35	(Dead)	Housewife	3	1
17	14 4	37†	36	Metal finisher	Housewife	5	2
18	16 2	47	42	Laborer	Housewife	8	7
19	15 0	45	42	Electrician	Housewife	9	5
20	15 7	46	41	Mechanic	Store clerk	6	3
21	16 7	46	36	Truck driver	Housewife	6	1
22	14 9	49	42	Maintenance man	Housewife	4	4
23	16 8	46	40	Foreman	Housewife	3	3
24	16 3	47	40	Boiler operator	Punch press operator	4	1
25	16 6	45	40	Sales manager	Housewife	3	1

* Divorced parents.
† Step-parents.

TABLE II
Ratings Recorded in Protocols

Case no.	Size of boy	Relationship with mother	Relationship with sibling(s)	Attitude concerning offense
1	Large for age	Good	Good	Arrogant
2	Large for age	Not good	Not good	Self-pity
3	Large for age	Not good	Not good	Boastful
4	Average	Good	Good	Self-pity
5	Large for age	Good	Good	Sullen
6	Average	Good	Not good	Defiant
7	Average	Good	Good	Sullen
8	Large for age	Good	Not good	Slightly boastful
9	Large for age	Good	Good	Indifferent
10	Large for age	Not good	Not good	No affect
11	Average	Good	?	Sullen
12	Large for age	Not good	Not good	No affect
13	Large for age	Good	Good	No affect
14	Large for age	Good	Good	Remorse
15	Large for age	Good	Not good	Boastful
16	Average	Good	Good	Feigned remorse
17	Large for age	Good	Good	Remorse
18	Large for age	Good	Good	No affect
19	Small for age	Good	Not good	Defiant
20	Large for age	Good	Good	Boastful
21	Large for age	Good	Not good	Sullen
22	Average	Good	Good	Remorse
23	Average	Good	Good	Indifferent
24	Average	Good	Good	No affect
25	Average	Good	Good	Self-pity

engaged in other offenses with a companion. Cases 1 and 3 had taken cars alone, but both had each brought a companion in one such adventure; case 1 had been a lone operator in one property theft.

In interviewing the youngsters, it was noted that a number made disparaging remarks to the effect that their classmates were "babies" or "chicken." The detailed case histories also showed often that a boy had broken with the peer-group of his own age and gone through a period of going around with a group above his chronologic age. Interestingly, teachers also commented to the effect that several had social difficulties centering about their being taller or more mature than classmates. This fact, buttressed by the earlier reported ratings on comparative size, points to a possible pattern of causation.

Another salient fact was that, although they lived rather far from each other, many of these boys knew each other. In interviews it was not unusual for one to ask whether we had interviewed a second; the boy thus named would often be arrested months later for an auto theft. Apparently, having broken contact with the neighborhood peer group, these boys had drifted into a peer group in which delinquency and auto theft were the common binding elements.

The police officers who cooperated in the research plan contributed the belief that some of the boys' delinquency was the product of "contagion" within the family, with the father showing marked disregard for law. Contrary to this hypothesis, 16 of the boys came from

homes in which no member had a police record for nontraffic offenses. In all but 1 of the remaining 9 cases, the offender was a sibling. The automobile-driving conduct of the fathers was not outstandingly poor. Eleven had no police file; 4 had received only parking tickets. Two, however, had lost driving licenses, 1 for drunken driving. Two others had collected eight traffic violation tickets, and one father had two accidents and had been imprisoned for beating his wife. The remaining men all had four or fewer traffic charges against them.

The testing program found that these boys were remarkably similar to the usual, "mine-

TABLE III

History of Delinquency in Family

Case no.	1st offense age yr., mo.	No. of arrests	No. of car thefts	Companionship in offenses		Family members with criminal records	Father's traffic record
				Property	Car		
1	14, 0	5	4	None	Once with companion	None	None
2	10, 4	13	2	Always with companion	Always with companion	None	None
3	14, 8	3	3	None	Once with companion	None	8 tickets, 3 parking violations
4	12, 10	11	5	With gang	With companion	None	3 tickets
5	14, 2	5	3	With companions	With companion	Older brother	1 parking violation
6	13, 3	4	2	With companion	With companion	Father	4 tickets, 2 accidents
7	16, 4	3	3	Alone	With companion	None	3 parking violations
8	16, 5	4	4	Alone	With companion	None	1 parking violation
9	15, 11	3	3	Alone	With companion	None	None
10	10, 3	10	3	Usually with companion	Usually alone	Twin brother	8 tickets, 1 accident, 4 parking violations
11	13, 5	6	1	With companion	With companion	None	None
12	10, 3	5	2	With companion	With companion	Older brother	None
13	14, 1	4	3	None	With companion	None	None
14	14, 8	2	2	None	With gang	Younger brother	None
15	15, 8	2	2	None	With gang	Older brother	3 tickets, 1 accident, license suspended twice for drunken driving
16	15, 7	2	2	None	With companion	None	None
17	12, 2	8	2	With gang	With companion	Younger brother	Not a driver
18	14, 8	8	4	With gang	With companion	Older brother	3 tickets, license suspended once
19	10, 5	5	2	With gang	With companion	Older brother and sister	1 parking violation
20	10, 11	10	2	With gang	With companion	None	None
21	15, 7	2	2	None	With companion	None	2 tickets
22	11, 6	6	1	With companion	With companion	None	None
23	16, 8	1	1	None	With companion	None	3 tickets, 2 parking violations
24	15, 3	5	2	With companion	With companion	None	None
25	16, 5	2	2	None	With companion	None	2 tickets, 1 parking violation

run" male juvenile delinquent. The findings, therefore, will be reported in general terms. As in the study by Gatling,[1] the Rosenzweig results revealed the group to be "extra-punitive." The Rorschach findings, as summarized by an expert,* bore on several of the points in the original hypothesis:

> There is considerable evidence of anxiety in these records. The anxiety is not of the free-floating variety (K or K only main in 1 case, additional in 3 more). It shows rather in the individual's denying himself freedom either in his own thinking or in interpersonal relationships. It shows up in an F per cent about 50 in 50 per cent of the cases as well as in the low M (less than 3 in 80 per cent of the cases and low sum of color).
>
> There is evidence of difficulty in masculine identification, castration fear, and attitude toward sex as revolting.
>
> Attitude toward people, both men and women, is frequently suspicious and critical. People are seen as witches, butlers, dunces, from "another world" or they are just "somebody" or just "people," in one record "sketches of people." The human action seen is frequently slight or even constricted such as standing, sitting, hands up, cigarette dangling from the mouth, or bending down, picking up something, praying. Frequently struggle between humans is seen such as fighting, pulling something apart, or pulling on a girl. In only one-quarter of the human movement responses was the movement a direct and free one—sending smoke signals, playing with a ball, and dancing.

The basic purpose of the present study is to gain some picture of how the interplay of factors develops in individual cases. Accordingly, at this point we shall turn from further attempt to describe the boys in "central tendency" terms and concentrate on presenting briefly 5 of the case histories chosen at random:

Charles Wilson† had a record of four arrests for stealing cars. The most recent offense occurred one cold January night while he was walking. He noticed an expensive car, the door of which was unlocked. Using tin foil to "jump" the ignition, he drove it to a park where he picked up two strange girls. After "necking" with them, he drove around until early in the morning. (One of the girls gave the police information leading to his arrest.) He considers himself the "black sheep" of his family. Teachers remember him as a strikingly tall boy. At fourteen he worked at the soda fountain of a drug store where he became acquainted with a group of older boys. Because of (alcoholic) drinking incidents with this group, his parents sent him to a private institution for rehabilitation of delinquents. The parents disagree about the boy. Mr. Wilson is a man of strict morality who cannot accept any moral weakness. Charles sees him as being opposed to any fun; there is definite strain between father and son. Mrs. Wilson seems to be bewildered by all this. She says she cannot understand the boy, "wants to save him from himself," but has no faith in him. Her comments included: "He is moody, loses interest very easily, is unable to complete a task, is pleasure-seeking, excitable, feels superior to his parents, and refuses to be influenced by them. Charles has a quick temper, always fights back, and runs away when under too much pressure." The boy is having trouble in school. However, this is due to clowning and lack of interest. On the Wechsler Bellevue Scale, his Verbal IQ is 116; Performance, 108; Full Scale IQ, 114. He has been a Boy Scout and sang in a church choir. While in detention he had the air of a self-assured, carefree adolescent, but flew into a rage when

* The authors are grateful to Dr. Gertha Williams for the analysis of the Rorschach protocols.

† To protect the privacy of individuals, all names and other specific identifying data have been changed.

committed to a state training school. Somewhat belying his impression of being at ease was a badly bitten set of fingernails. Although he showed no evidence of guilt or remorse about his thefts and lightly declared he would repeat them whenever it suited his purpose, there is a good deal of evidence that he is torn by inner conflicts.

Philip Andrews was a short, slender 16 year old with a record of 12 police contacts, five of them for auto theft. His own reason for taking cars was that most of the time he was bored to death, and enjoyed the thrill of picking up his buddies and girl friends. Both parents work; the father earns $70.00 per week at a skilled trade and his mother $35.00 as a saleswoman. When interviewed, the father declared that the family had moved into a good neighborhood to get Philip away from bad companions. Also, the family had bought a large television set to keep the lad at home. However, according to the father, these measures failed because other boys kept calling up his son and their influence was too great for the home to counteract. The mother likewise said that the parents had made every effort to straighten out the boy. Both father and mother agreed he was now completely beyond their control, and should be "sent to a state institution." Philip declared that he got along well with his mother and sister, but could not stand the way his father talked to him when he did anything wrong. The picture of family harmony was contradicted by one of Philip's buddies who reported witnessing a scene in which Mr. Andrews beat his wife with an electric cord. At school, the boy had done well until he entered high school. Group intelligence tests placed him in the upper quartile for his age group. However, he failed algebra and drafting classes in the ninth grade, switched to a trade school, and then dropped out. The high school counsellor reported that Philip seemed preoccupied with other matters, had no interest in school work, and did not seem to care what happened to him. His sister had a straight A average in the same high school. In face to face relations with adults, Philip made a uniformly good impression. The father stated that when at home the boy was obedient. His elementary school teachers were surprised to learn that he was in trouble. The supervisors in the detention home reported that the boy adjusted well on the laundry squad. This tendency to function well under close adult supervision was coupled with a tendency to run away. Twice, he used stolen automobiles for long trips; on one of them he reached Nebraska. He also escaped from a training school to which he had been committed; characteristically, his trip back to Detroit involved the stealing of three cars.

Ned Richmond was the 13 year old in our sample. In his case, the tendency for these youngsters to leave their peer group and become involved with older delinquents could be seen in its early stages, although in his case early maturing was not a factor. In the incident which brought his detention his companion was a 16 year old with a long police record. However, Ned had managed to pile up a record of four arrests, two of them for auto theft. In the most recent offense, the two had stayed at a girl's house until 1:00 a.m. Afraid to go home, they slept in a park and remained away from home three days. Then, seeing a car with keys in it, they drove away, intending to go to see Ned's sister who lived in Texas. The home situation was a bad one. Ned's father is an alcoholic, who has since received a prison sentence for assaulting Mrs. Richmond. Scenes of violence are frequent in the home. Ned boasted of having come to his mother's rescue on one occasion by knocking his father

unconscious with a battery cable. Asked if his father punished him the boy answered: "I dare him, he hasn't whipped me since I was eight years old." The boy's contempt for his family extends to all five of his sisters. His attitude towards the boys in his neighborhood is, "They are all babies. They are chicken. Just touch them once and they cry." Accordingly he goes around with older boys, and works at odd jobs to get spending money. The one stable element in the picture is Mrs. Richmond, who does her best to keep the family intact. Her efforts alone prevented legal neglect charges. At school, the boy's poor work and obvious emotional difficulties had led to referral to the psychological clinic. As one of the causes of scholastic problems, his IQ was found to be 80. In all other respects, their investigation verified the picture of bad home conditions previously described. Efforts by school personnel and probation officers to aid the boy have been thwarted by the low family morale. The prognosis in his case is poor.

George Lefevre presents a much more puzzling case, that of a "good boy" who suddenly began getting in trouble at 16. Within a period of one month he was picked up for four auto thefts. On the first two occasions it was his father who discovered the offenses and informed the police. The most recent arrest had a strange aspect. Coming out of a show on a rainy day with a friend, he saw a car with the key in it. George drove the car away from the scene and then turned the wheel over to the friend, who then drove George to an appointment with his probation officer! Later the friend had an accident, and told the whole story to the police. Although George's auto thefts appeared to be a reaction to disputes with his father over use of the family car, there is evidence that the change in his conduct covers other fields too. In junior high school, he was regarded by his teachers as a model student, although he failed mathematics in the seventh grade and English in the eighth. His first year at a technical high school was marked by frequent truanting with a chum. He also tried to prepare fake report cards on which he forged teachers' names and high marks. In many ways, George's earlier relations with his 60 year old father, a supervisor of plant protection guards, seemed almost ideal. The two often went fishing together on week-ends, and seemed to enjoy each other's company. Mr. Lefevre taught the boy to drive; in recent years the boy drove the car on the fishing trips. George's real mother died when the boy was only a few months old. Within a year Mr. Lefevre married again; his second wife was 20 years his junior. Although George's stepmother was reticent concerning the boy, she plainly felt she understood him better than his father, whom she considered old and "nervous." The boy does not get along well with his two half-sisters. Mrs. Lefevre stressed that George had "always" been given "everything" he wanted; a bicycle, allowance, and much play equipment. Like several other boys of the study group he had been big and heavy for his age. However, his few friends were of his own age. Interestingly, many different adults: his teachers, his stepmother, his probation officer, all used the word "good" in describing him. All also mentioned the fact that he was nervous and bit his nails. Several facts about his car-stealing episodes were striking. He had made unusually neat and ingenious "jumper" wires for making connection to get around ignition locks. One set was even equipped with switches. He left these where his father could find them. The older man recognized their purpose. Also, in his first car thefts George drove where his

father would see him. These actions probably served either consciously or unconsciously to bait the older man.

In the case of Tom Reynolds, the combination of circumstances leading to auto theft included a low IQ, exposure to influence of other delinquents, and a disturbed family situation. His twin brother also had a police record, which did not, however, include auto theft. The father is now 67 years old, and is reported to have been very overprotective of the boy, the offspring of a common-law marriage. Tom was sickly as a boy. His medical history included two severe cases of scarlet fever, and an appendectomy. The boy's start in school was very unfavorable. Due to unsatisfactory work in the second grade, he was given a Binet examination, on which he showed an IQ of 72. At about this time, he was also involved in a burglary. A visiting teacher was assigned to the case. In the boy's tenth year, troubles developed swiftly. Mr. Reynolds divorced his common-law wife, remarried, and promptly began to quarrel with the new wife about her treatment of the boy. Within one year, she ran off with a man who roomed in the house. Meanwhile, Tom continued to be involved in burglaries. While in detention, other boys told him how to steal cars. When he was 13 he was committed to a training school for mentally handicapped youngsters, from which he truanted once. Retesting with the Binet gave a new IQ of 96. Accordingly, he was discharged at 14, and entered the eighth grade of a regular public school. Meanwhile, his stepmother had followed a pattern of returning to the home, and leaving again. She drinks heavily, and deserted for good when she heard Tom was being released. At this time Mr. Reynolds secured a divorce. Within three months, Tom had stolen his first car. The reason he gave was that he "always" got in trouble the last month of school. The Juvenile Court sent him to a private institution for the rehabilitation of delinquents. The offense which brought him to our attention took place in connection with running away from that place. Because it illustrates the nature of the boy's delinquencies we shall present the exact sequence in some detail. Tom had run away with another boy; the two hitch-hiked back to Detroit. They split up because Tom took fright when his companion talked about stealing an automobile. When Tom reached his home no one was there. He went to his girl friend's house but found she was not home. Then he went to a used car lot, drove off in one of the cars, and went looking for his girl friend, whom he finally located at school. The two then drove around in the stolen car. After taking her home, he slept all night in the car. Next day, dozing at the wheel, he wrecked the car. He took a cab to the same used car lot, drove off in another car, and went looking again for his girl friend; this time he located her at a music school. It was while they were joy-riding again that he was stopped by police.

DISCUSSION

On one major point the analysis of the case studies, as indicated by the results of the testing program and the illustrative case studies, bore out the results of the earlier statistical study:[5] the boys from good neighborhoods involved in auto theft were in most respects, except for socio-economic level, much like a cross section of juvenile delinquents in general.

No single personality pattern could be isolated in this group; these boys did not conform to any "type."

The results of the present study differed from the earlier one in one minor finding: whereas the statistical survey had found a smaller proportion of mothers working, the present sample had revealed the reverse to be true. For one such item to behave in this way might well be the result of probability.

The case studies brought out some relationships which, due to the incomplete schedule for gathering data, were not discovered by the mass statistical procedure. One was the role in a number of cases of early physical maturing in breaking the connection between a boy and his own age group, and thus preparing the ground for exposure to delinquent action in an older group. Another item was the extent of contact and behavioral contagion among these boys as far as auto theft was concerned. The third was the extent of anxiety as indicated by the Rorschach findings, and of parent-child stress as brought out by the case histories.

This last finding bears particularly upon the surmise made on the basis of the statistical survey that these boys would show the syndrome of "socialized delinquent" as portrayed by Hewitt and Jenkins[3] or "adaptive personality" as described by Havighurst and Taba.[2] Certainly, the high level of anxiety would belie the contention that these lads had weak or only partially formed superegos. Moreover, the case studies often showed the exact opposite of "unsupervised" upbringing. The surface appearance of an "easy-going manner" and strong peer-group identification seems to be in the nature of a defense against inner turmoil. In both respects, this study would appear to bear out the contention of Topping[4] that "the pseudo-social boy" owes many of his characteristics to reactions based upon very strong conflict growing out of perturbed home situations.

There is a possibility that the difference between the hypotheses developed from the statistical survey and the results of the case studies may reflect differences in the samples. The statistical survey included many one-time offenders. The case studies were made on boys who were in detention, largely because they had relatively long police records. Yet, it would be all too easy to overstress this explanation and in doing so ignore the fact that the case studies did not contradict the statistical facts but rather placed them in a new light.

The significant result of this study may well be certain of its implications for future research programs. The type of datum that facilitates ready counting and lends itself to statistical mass surveys usually fails to reach important dimensions of psychologic functioning. The meaning of such data, therefore, can best become clear when viewed in a clinical context. There has been a temptation for research workers to look for verification of clinically devised theories by utilizing the seemingly more objective methods of mass statistics. This study has shown the possible value of a reverse approach: testing the findings of mass statistical studies by inspecting the less objective but more revealing case studies of individuals who "fit" the statistical patterns.

SUMMARY

Case histories were obtained on 25 boys from "good" neighborhoods who were involved

in auto theft. The studies indicated no single pattern but rather a combination of patterns found often among other delinquents. Far from being easy-going, unsupervised, well-socialized boys as had been inferred from a previous statistical survey, most boys of this group gave evidence of having strong anxieties and coming from perturbed home situations.

RESUMEN

Se obtuvieron 25 historias de jóvenes que vivían en barrios de "buena" vecindad y que estaban acusados de robos de automóviles. Los estudios demostraron que no se trataba de casos con un solo factor determinante sino más bien de una combinación de los factores observados en otros delincuentes. Lejos de ser jóvenes perezosos, faltos de vigilancia y bien adaptados socialmente, como se había probado con anterioridad por una encuesta estadística, la mayoría de ellos presentó signos de intensa ansiedad, comprobándose además que provenían de hogares mal avenidos.

RESUME

L'auteur présente une étude de 25 jeunes gens provenant de "bons" quartiers qui furent impliqués dans le vol d'automobiles. L'étude indique qu'il n'en ressort pas uniquement un seul tableau, mais plutôt une combinaison de facteurs rencontrés chez d'autres délinquants. Au lieu d'etre des personnages insouciants, non-surveillés et bien adaptés à la société, comme on pouvait penser sur la base d'une étude statistique antérieure, la plupart des jeunes gens dans ce groupe donnèrent des preuves d'être profondément anxieux et d'être issus de foyers agités.

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Clinical Psychopathologic Conference

An Unusual Case of Hysteria*

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INTRODUCTION

Grande hystérie, characterized by motor attacks and other exuberant somatic phenomena, was frequently seen in the latter part of the last century. However, this disorder, termed "conversion hysteria" since the time of Freud, is becoming increasingly rare. The present infrequency can be attributed to the variety of practical methods that permit a rapid diagnosis and removal of such spectacular phenomena. While the problem of hysteria still exists today, it does not do so because of the persistence in considering hysteria the cause of any number of symptoms, but because of a knowledge of the complex psychologic mechanisms that force certain persons to convert their anxiety into somatic symptoms. However, this does not mean that a case of complex somatic hysteria does not occasionally arise that presents considerable diagnostic difficulties.

The publication of a case of this kind does not imply any criticism or censure of those physicians who hesitate for a long time in their diagnosis; the author himself, in the beginning, suffered from the same doubts and hesitations. It aims only to show, even today, the need to bear in mind this strange phenomenon of somatic hysteria when one is confronted with cases that seem to present difficult and confusing clinical features.

CASE HISTORY

M.G., a 17 year old maid, was admitted to the neurology ward on November 13, 1954, and was discharged on February 12, 1955.

The patient became ill in December, 1953. At that time she suffered from abdominal pain, copious and bloody diarrhea, high fever and, from the beginning, a distended abdomen. Antibiotics were prescribed and the diarrhea disappeared, but the fever continued, although decreased, and the abdominal distension increased.

In January, pains began in both lower limbs, from the knees downward, accompanied by a considerable reduction in muscular strength. Bedridden from that time, the patient was unable to walk, the lack of strength in her legs not even permitting her to stand up. This was followed by urinary retention, and later, a small, superficial decubitus ulcer appeared in the sacral area.

The abdominal pains, extraordinary distention of the abdomen, and irregular fever remained unchanged. In August, 1954, M. G. was admitted to the hospital where she re-

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mained until her transfer to the neurology ward. There the case was diagnosed as tuberculous peritonitis, fully justified by the patient's antecedents, the fever, and the extraordinary abdominal distension. Although she was given strong doses of antituberculous drugs, there was only a slight improvement. The contradictions in the neurologic examination did not escape the physician's notice, but the poor general condition, the fever, and the abdominal phenomena delayed consultation with a neurologist. However, after the neurologic examination, her transfer to the neurology ward was proposed.

The patient had a troubled personal history. In infancy, she suffered from a "cold abscess," which left a scar on her back (costal tuberculosis?). She also had typhoid fever and rheumatoid arthritis localized in the lower limbs. For a long time the patient had complained of dyspnea and palpitations, and at times she suffered from hemoptysis. The family antecedents were also poor, with a strong tendency toward all forms of tuberculosis, pulmonary and extrapulmonary.

PHYSICAL EXAMINATION

The examination showed a young girl whose real and stated ages seemed to coincide. She had intense paleness of the skin and mucous membranes, a regular state of nutrition, and was bedridden. The patient was lucid and willing to cooperate during the examination. There was a high, irregular, remittent fever that frequently passed 102.2 F.; the pulse rate was 90, weak but regular; and the blood pressure ranged from a maximum of 110 mm. of Hg to a minimum of 80 mm. of Hg. There was a distinct polypnea with shallow respiration. Cardiac erethism was present, with accentuation of the second pulmonary tone. A protruding abdomen, with tympanism, and of the approximate volume of a seven or eight months' pregnancy, was observed. The abdomen was painful to pressure. Palpation of glands and spleen was negative.

Laboratory Tests. M. G. was submitted to innumerable laboratory tests while in the medical ward as well as in the neurology ward. Erythrocyte sedimentation rate varied between 15 to 30 mm. The sputum examination was negative for acid-fast bacilli. Blood tests were normal. Analysis of the cerebrospinal fluid showed blood cells, 0.8/cu. mm.; albumin, 0.20 per cent; Pandy test, negative; Rivalta and Wasserman, negative; and mastic test, normal curve.

Roentgenograms. The patient had many roentgenograms taken of the thorax, spinal column, intestines, and pelvis. All roentgenograms were normal.

NEUROLOGIC EXAMINATION

Cranial Nerves. All were normal. Sight and hearing were normal. Pupillary reaction to light and accommodation was good. Conjunctival and corneal reflexes were normal, as well as the pharyngeal reflex, which was also very sensitive.

Motility. Total flaccid paralysis of the lower limbs and atrophy of the muscles, accentuated in both legs but less in the feet and thighs, were observed. The skin was dry and peeling, with a dystrophic appearance, especially on the legs. There was accentuated

muscular hypotony, especially in the thighs. Hyperextensibility tests were positive. Muscles were not painful to touch, and passive movement of the lower limbs was possible without pain. Motility of the upper limbs was normal.

Reflexes. Deep reflexes were normal in the upper and lower limbs, with intermediary activity and without extension of the reflex areas. Skin and profound reflexes of the abdomen responded normally and symetrically. Plantar reaction was either negative or reacted in flexion. There was no clonus nor was there any sign of pyramidal tract irritation.

Sensibility. The patient's replies were varied and discordant so that the results could only be accepted with reserve. There was frontal cutaneous hypoesthesia that ascended to the crural arch, accompanied also by the absence of profound and discriminatory sensibility. The posterior hypoesthesia ascended until D8, although in a less marked degree.

Sphincters. The patient had been catheterized. When the catheter was removed there was a painful retention of urine, sometimes for 24 hours, causing alginuresis. There was also obstipation.

DIFFERENTIAL DIAGNOSIS

Immediately after our first examination, we were convinced that this was a case of paraplegic hysteria. We attempted suggestion therapy with electricity, but the results were negative. Because of the generally poor condition of the patient, the high fever, and the diagnosis of tuberculous peritonitis with which she entered the hospital, we abandoned the idea of immediately trying to remove or eliminate the paraplegia. However, the abdominal condition did not improve, the volume remaining considerable, and the high, irregular fever continued.

At this time a new symptom appeared that forced us to try a simplified form of psychotherapy. During the attempted removal of a vesical catheter, the spasms of the bladder sphincter and of all the perineal muscles were of such strength that the catheter could not be removed.

When we first tried narcoanalysis with pentothal, the results were spectacular. The catheter was easily removed; the volume of the abdomen, with a circumference of 85 cm. at the beginning of the analysis, decreased to 76 cm.; and at the first session we succeeded in achieving some spontaneous movement of the lower limbs. A few more sessions of narcoanalysis completed the patient's cure and furnished us with details of the psychologic situation that led to such spectacular symptoms.

The illness had been preceded by a feeling of annoyance when a friend accused M. G. of stealing some knitting needles. But the spiritual unhappiness already existed. She lived with her married sister, and her brother-in-law's sexual advances, when drunk, two or three times a week, frightened her and were the true cause of her refuge into illness.

M. G. remained in the infirmary for some time to correct the muscular atrophy of the legs caused by inactivity. She was then discharged cured, having been bedridden for almost a year. The mystery of the fever remained unsolved, but it disappeared as soon as the abdominal volume was reduced and the legs began to move, after the first session of narcoanalysis. The short psychotherapy, which lasted less than a month, was accompanied by a strong transference to the therapist.

DISCUSSION

Conversion hysteria is generally accompanied by common, somatic symptoms such as heart and digestive complaints. Motor attacks such as the total paraplegia, with urinary retention, exhibited by our patient are rare. Of course, there are some cases of paraplegia causing relapsing paralysis, some of them "cured" pseudomiraculously, but their number is tending to decrease. Today, the phenomena of motor conversion are generally limited to spasms or localized paralysis, dysphonia or even aphonia, and dysphagia. It is not difficult to identify their hysteric origin. However, the hysteric origin of M. G.'s paralysis was obscured by the abdominal and febrile phenomena.

The painful distention of the abdomen, accompanied by fever and a general poor state of health, previously diagnosed as tuberculous peritonitis, was well known to the great French specialists in hysteria of 40 years ago. At the beginning of this century, Bernheim first spoke of the "accordion abdomen," an expression that clearly described the character of an abdomen able to diminish and redistend rapidly. During the war years of 1914 to 1918, this phenomenon appeared frequently, and was termed *"gros ventre de guerre"* and *"catiemophrenose,"* the last word meaning the increase in volume of the abdomen and its diaphragmatic origin.

Denechau and Mattrais,[4,5] and Roussy et al[8] precisely described this phenomenon, and the following excerpt is a perfect description of the case we presented.

> Catiemophrenosis generally occurs at the time of digestive upsets of varying intensity. For a very short time, sometimes abruptly, the abdomen extends in volume. This distention of the abdominal walls, often very great, becomes the dominating symptom. The abdomen is globular, distended, and attains the volume of that of a woman eight or nine months pregnant. It is resistant to light pressure. It does not change with respiration, which is of the superior thoracic type, the amplitude of movement being reduced to the minimum.
>
> At times, gastric and intestinal disturbances become worse and even refractory. The general state is strictly on a par with the rest. If the troubles are very intense, it becomes worse. There is extreme loss of weight, the general appearance is poor, and at times, there is even an abnormal pigmentation of certain zones of the skin, particularly on the face.
>
> The worsening of the general state of health causes a certain number of these patients, in their long hospital pilgrimages, to be considered carriers of tuberculous peritonitis, and they are treated as such.

A curious aspect of these cases is the frequency with which they are submitted to surgery, a procedure the patients themselves suggest. Quenu referred to 3 cases in which an operation had been proposed, and in which only the singular effect of the anesthesia on the volume of the abdomen prevented the operation and led to the discovery of the true origin of the phenomenon. Delay et al[3] also published a case of a girl who had been operated on for an analogous phenomenon.

Since Denechau and Mattrais,[4,5] the mechanism of the distended abdomen is admitted to be the result of a voluntary contraction of the lower region and a forced elevation of the diaphragm. Actually this is a case of phrenic or diaphragmatic neurosis. These cases, although rare, are today not yet exceptional. Some time ago, Krantz[6] produced evidence that one of the miracles mentioned in the posthumous book by A. Carrel,[2] *Journey to Lourdes,*

was probably also a case of catiemophrenosis. The rapid, spectacular decrease of abdominal volume makes this interpretation feasible.

The use of short psychotherapy, in our case, rapidly effected the patient's symptomatic cure. This method also demonstrated the probable psychogenesis of the morbid state: the slight moral blow, suffered shortly before the beginning of the illness, hid the real repugnance toward the environmental factors in her life, the fear of her brother-in-law and perhaps even the shock caused by his sexual advances.

The problem formulated in this case has been approached at various times and by different authors from the point of view of one of these three possible pathogenic mechanisms: (1) the organic illness that imposes the simulation, (2) the pure simulation, and (3) simulation caused by latent psychologic mechanisms.

Today, the first hypothesis can be considered obsolete. The many tests that seek to demonstrate the organic origin of hysteria, the symptomatology of hysteric anesthesias, the existence of electroencephalographic changes, or any other method, do not establish absolute proof. Actually, it was never possible to demonstrate an anatomicopathologic substratum for hysteria. Neither does the eventual psychogenic break-down of certain organic phenomena (dystonic spasms, ocular crisis) validate an argument, since psychogenic causes in these cases have been shown to be probable precipitating or aggravating factors, not the primary cause.

The second hypothesis, that of pure simulation, is still defended today by many authors. Boisseau,[1] a leading authority on hysteria, defended it a few years ago in an extensive and documented paper. For these authors, the hysteriac satisfies himself with this simulation performed before us, the audience. His simulation is intentional and is not different from any other attempt to mystify. The hysteric act has three essential psychologic characteristics of simulation: (1) the selfish aim, (2) the intervention of desire, and (3) the intention to deceive. Therefore, according to these authors, there is no difference between the so-called hysteric conversion and the intentionally false pretences of a criminal, as there is no difference between the hysteric conversion and the impersonations of an actor in the theatre. The extension of this simple theory would result in withdrawing the hysteriac from the jurisdiction of medicine and placing him under the jurisdiction of moral codes and legal statutes. Indeed, how can one explain the inevitable hysteric simulation relapse, if the cure were really complete? And how many times do we find hysteric simulations in which the selfish aim has long since ceased to exist, but in which the conversion phenomenon has only a symbolic value? The actual, willing intervention is doubtful. Very frequently the hysteric intervention exists involuntarily for the patient. Recamier,[7] in his remarkable paper in which he compares the mechanisms of hysteria with those of acting, clearly illustrates this point. The actor prepares himself for his impersonation, after freely choosing the part he is to play, by recalling the emotions that he wishes to create. The hysteriac suffers the emotion that he involuntarily transforms into a performance. Emotions the actor himself has experienced enable him to portray the fictional character, whereas the hysteric symptom does not portray an *Erlebnis*. On the contrary, it is the real *Erlebnis*, directly expressed by an hallucination or a paralysis in a short-circuited mechanism. Thus

the actor reveals something, while the hysteriac, on the contrary, is the medium through which something is revealed. If a comparison is to be made, it is not with the actor performing a tragic role, but with the theatre in which the tragedy is being enacted.

The truth, therefore, lies in the third theory backed by psychoanalysis and analytic psychotherapy. The hysteriac, through emotional tension following the *refoulement* (repression) of traumatic sexual experiences or desires, suffers a modification of his personality, acquiring a new conduct, a new manner of being, and expressing himself differently from the ordinary human being. His need for satisfaction, his inability to function, creates in him the necessity for pretence in order to gain attention. From this, the famous formula of Klages is derived: hysteria is the reaction of a need to act upon the feeling of the impossibility to live.

The psychologic alterations so common in the hysteriac, his need for attention and for acting, his egocentric tendencies, the constant desire to romance and invent, the exaggeration of parental complexes even when these are not active, and his ludicrous hyperactivity that compensates for his dissatisfaction, these manifestations constitute a hysteric deformation of personality, the expression of anguish in the face of instinctive tendencies. We believe, with Recamier,[7] that the spectacular accidents, convulsions, paralysis, or catiemophrenosis are simultaneously the actual sexual activity of the hysteriac and a defence against his instincts, a kind of homeopathy that the hysteriac imposes upon himself to compensate for his feelings of unreality.

The need to admit the personality or hysteric behavior in hysteria (Alexander), on the one hand, and the symptomatology of conversion, on the other hand, a necessity that is raised by the best modern theories, does not completely explain the mechanism of conversion. This mechanism is of fundamental importance in modern psychosomatic medicine. One can utilize all methods of investigation, separating organic or vegetative neuroses from the hysteric neurosis of conversion as Alexander and Parcheminey have done, yet the problem that always arises in all psychosomatic speculation is the mechanism of conversion. This implies taking a position on a philosophic plane. When we say, as Freud did, that conversion is a symbolic expression of a repressed conflict of a phallic or genital nature by means of a corporeal symptom, we take up a clearly dualistic position of a Descartian or Aristotelian nature. Conversion so conceived, represents, as Freud himself asserted, a jump from the psychic to the somatic.

One can thus understand the attempts made in the past decades, more or less consciously, to interpret the symptomatology of conversion in the light of monistic philosophic principles. Whether hysteric phenomena are considered an anthropologic regression, either in the form of pre-existent types of reaction (*fertige Schablonen* of Bing), or another anthropologic existentialism that implies a metaphysical faith (von Weizsaecker, Mitscherlich), or by regarding them, in an organogenetic concept, as epiphenomena that accompany the emotions, the defenders of these and many other points of view seek only to reduce the problem to a monistic philosophic concept.

In a recent monograph, Valabrega[9] brilliantly discussed the different philosophic positions of this problem, and pointed out the confused and verbalistic character (how often ingeniously verbal) of such discussions. As a general rule, the physician has little interest

in fundamental philosophic divergencies, and, without a doubt, it is the Freudian explanation that satisfies him and is confirmed in his daily practice. The symbolic value of symptoms and the sexual nature of the conflict are documented in every case. In our case, there were the extraordinary contraction of the perineal muscles that impeded the removal of the catheter, the enormous increase in the abdominal volume, and the paraplegia. These are very evident symbols of a fear of sexual aggression and of the patient's desire for maternity. If we continue to maintain a dualistic position from the philosophic point of view, from the medical point of view we succeed in obtaining a useful understanding that aids us in curing and helping patients, and that is the only true objective of medicine.

RESUMEN

El autor presenta el caso de una niña de 17 años que fue hospitalizada con paraplegia, distensión abdominal, retención urinaria y persistente pirexia. A la luz de una historia familiar de tuberculosis, se sospechó al principio una peritonitis tuberculosa. Todas las pruebas usuales dieron resultados normales.

Por medio del narcoanálisis la distensión abdominal cedió de un modo espectacular, aliviándose la contracción del esfínter de la vejiga que impedía la remoción del catéter. La paciente curó después de haber estado en cama por casi un año. La posible etiología psicogénica de los síntomas histéricos era el miedo al traumatismo sexual en el ambiente familiar de la paciente. El autor estudia también los aspectos generales de la histeria de conversión.

RÉSUMÉ

L'auteur présente le cas d'une jeune fille de 17 ans admise à l'hôpital avec paraplégie, grosse distention abdominale, rétention d'urine et fièvre persistante. En vue d'une histoire familiale de tuberculose, un diagnostique de péritonite tuberculeuse fut considéré. Tous les tests ordinaires donnèrent des valeurs normales.

Pendant la narco-analyse, la distention abdominale s'affaissa d'une façon spectaculaire, et la contraction du sphincter de la vessie, qui avait empêché de retirer une sonde, cessa. Après avoir été au lit près d'un an, la malade fut renvoyée guérie. Une cause étiologique possible de l'hystérie était la peur d'une aggression sexuelle dans l'entourage de la malade. L'auteur discute également les aspects généraux de l'hystérie.

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Dr. Mortimer D. Sackler Appointed Co-editor of the Journal of Clinical and Experimental Psychopathology

We take pleasure in announcing the appointment of Mortimer D. Sackler, M. D., as Co-editor of the Journal of Clinical and Experimental Psychopathology.

Dr. Sackler received his psychiatric training at Creedmoor State Hospital in Long Island, New York. He was one of the moving forces in organizing and directing the research and clinical outpatient department which in 1950 was expanded and formalized as the Creedmoor Institute for Psychobiologic Studies.

Dr. Mortimer D. Sackler

He has been active on the editorial board of this journal since his return from military service in 1954 and has already greatly contributed to its recent improvements. It was under his inspiration that the Clinical-Psychopathologic Conferences were originated in this journal. Prior to his military service, he devoted his principal efforts to clinical and physiologic research and is the author of more than 30 reports, including several presented to the most recent international congresses in psychiatry and physiology.

In addition to his interests in the physiodynamic, clinical, and research aspects of psychiatry, as evidenced in his participation in many studies published in this and other international psychiatric journals, Dr. Sackler has made some important contributions to the integration of clinical psychologic research with clinical and research psychiatry. His papers and work have been widely quoted abroad, and he has lectured in many centers and societies in this country. Dr. Sackler was among those who persisted in efforts to delineate the psychiatric disorders in terms of chemical, endocrinologic, and biologic concepts, integrating these physiodynamic aspects into the more popular psychodynamic viewpoints that prevailed before the introduction of reserpine and chlorpromazine.

A diplomate of the American Board of Psychiatry and Neurology, Dr. Sackler is a member of the American Medical Association, American Psychiatric Association, Association for Research in Nervous and Mental Disease, New York Society for Clinical Psychiatry, American Psychosomatic Society, Electroshock Research Association, Association for Advancement of Psychotherapy, American Group Psychotherapy, and the American Association for the Advancement of Science. He has also traveled in Europe and participated in several international congresses.

An original thinker and a pioneer in the new trends of psychobiology, he will bring to this journal his tireless intellectual vigor and brilliant imagination and his devoted dedication to the cause of progress in psychiatric research and clinical psychiatry.

Félix Martí-Ibáñez, M.D.
Publisher and International Editor
Journal of Clinical and Experimental Psychopathology

QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY

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Incorporating the International Record of Psychiatry and Neurology

international board

INCORPORATING INTERNATIONAL RECORD OF PSYCHIATRY AND NEUROLOGY

FOREWORD

The purpose of the QUARTERLY REVIEW OF PSYCHIATRY AND NEUROLOGY is to present promptly brief abstracts, noncritical in character, of the more significant articles in the periodical medical literature of Europe and the Americas.

For readier reference, the abstracts are classified under the following general headings:

PSYCHIATRY

1. Administrative Psychiatry and Legal Aspects of Psychiatry
2. Alcoholism and Drug Addiction
3. Biochemical, Endocrinologic, and Metabolic Aspects
4. Clinical Psychiatry
5. Geriatrics
6. Heredity, Eugenics, and Constitution
7. Industrial Psychiatry
8. Psychiatry of Childhood
9. Psychiatry and General Medicine
10. Psychiatric Nursing, Social Work, and Mental Hygiene
11. Psychoanalysis
12. Psychologic Methods
13. Psychopathology
14. Treatment
    a. *General Psychiatric Therapy*
    b. *Drug Therapies*
    c. *Psychotherapy*
    d. *The "Shock" Therapies*

NEUROLOGY

1. Clinical Neurology
2. Anatomy and Physiology of the Nervous System
3. Cerebrospinal Fluid
4. Convulsive Disorders
5. Degenerative Diseases of the Nervous System
6. Diseases and Injuries of the Spinal Cord and Peripheral Nerves
7. Electroencephalography
8. Head Injuries
9. Infectious and Toxic Diseases of the Nervous System
10. Intracranial Tumors
11. Neuropathology
12. Neuroradiology
13. Syphilis of the Nervous System
14. Treatment
15. Book Reviews
16. Notes and Announcements

In fields which are developing as rapidly as are psychiatry and neurology, it is obviously impossible to abstract *all* the articles published—nor would that be desirable, since some of them are of very limited interest or ephemeral in character. The Editorial Board endeavors to select those which appear to make a substantial contribution to psychiatric and neurologic knowledge and which promise to be of some general interest to the readers of the REVIEW. Some articles, highly specialized in character, or concerning a subject already dealt with in an abstract, may be referred to by title only at the end of the respective sections.

A section entitled INTERNATIONAL RECORD OF PSYCHIATRY AND NEUROLOGY is included at the beginning of the journal. The Record Section consists of advanced clinical and experimental reports.

The Psychiatry and Neurology Newsletter was compiled by Doctors Leon Epstein and Francis N. Waldrop.

The Editorial Board at all times welcomes the suggestions and criticisms of the readers of the REVIEW.

WINFRED OVERHOLSER, M.D.
Editor-in-Chief

QUARTERLY REVIEW OF
PSYCHIATRY AND NEUROLOGY

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ABSTRACTS

psychiatry

ADMINISTRATIVE PSYCHIATRY AND LEGAL ASPECTS OF PSYCHIATRY

127. *Age and Sex in Relation to Mental Disease.* BENJAMIN MALZBERG, Albany, N. Y. Ment. Hyg. *39*:196–224, April, 1955.

This is a study of the relative incidence of mental disease with respect to age and sex. The data consist of first admissions to all mental hospitals in New York State, public and private, during the three years which began October 1, 1948 and ended September 30, 1951. This period was selected because the mid-point, April 1, 1950, was the date of the Federal census of population, and thus facilitated the computation of rates of first admissions. There were 58,249 first admissions during this period of whom 28,644 were males and 29,605, females. The number of first admissions has increased at a greater rate than the general population of New York State. Such admissions increased from 33,683 during fiscal years 1929 to 1931, to 46,633 during fiscal years 1939 to 1941, to 58,249 during 1949 to 1951.

The increase in the number of first admissions was accompanied by shifts in the proportionate numbers of the major groups of mental disorders. General paresis, for example included only 1,196 of the 58,249 first admissions in 1949 to 1951 or 2.1 per cent of the total compared with 9.9 per cent in 1930 and 6.1 per cent in 1940. The manic-depressive psychoses showed a similar decline. They included 13.4 per cent of the total first admissions in 1930, but only 4.2 per cent in 1950. On the other hand first admissions with dementia praecox increased from 26.3 per cent of the total in 1930 to 28.9 per cent in 1950. The percentage with involutional psychoses increased from 2.8 to 8.6 per cent during the same interval. The most striking changes were with respect to first admissions with psychoses with cerebral arteriosclerosis and senile psychoses. The former group increased from 13.4 per cent of the total first admissions in 1930 to 18.3 per cent in 1950. The latter increased from 8.8 to 12.9 per cent.

These changes were due primarily to the aging of the general population with a

corresponding increase in the proportion of first admissions aged 60 or over. In 1930 for example, the population of New York State aged 60 or over included 8.5 per cent of the total compared with 13.1 per cent in 1950. The corresponding percentages among first admissions were 23.2 and 35.5, respectively. As a result of the increase in the average age of the general population with corresponding changes among first admissions the average age at first admission increased from 42.7 years in 1930, to 48.4 in 1940, to 50.3 years in 1950. The average age increased among male first admissions from 41.6 years in 1920, to 47.9 years in 1940, to 49.3 years in 1950. The average age increased among female first admissions from 43.9 in 1920, to 49.1 in 1940, to 51.4 in 1950. Thus, there has been a steady increase over several decades in the average age of first admissions to hospitals for mental disease in New York State. With but one exception, the major groups of mental disorders all showed increases in the average age at first admission between 1920 and 1950. Among general paretics, the average age increased from 43.4 to 50.3 years. Among alcoholics, the average age increased from 44.5 to 47.9 years. The average age of first admissions with psychoses with cerebral arteriosclerosis increased from 64.8 to 71.2 years. Among first admissions with senile psychoses, the average age increased from 73.6 to 78.7 years. First admissions with involutional psychoses showed an increase from an average of 53.8 to 54.1 years. First admissions with manic-depressive psychoses increased from an average age of 33.7 years to 42.0 years. Only first admissions with dementia praecox showed a decrease, the average age having decreased from 33.6 years in 1930 to 32.6 years in 1950.

The relative distributions of the several groups of mental disorders vary as one passes from the youngest to the oldest age groups. Admissions are few at the youngest ages but these are predominantly cases of dementia praecox and the behavior disorders. In the very youngest age group among males the behavior disorders are almost as frequent as dementia praecox. Dementia praecox is the most frequent category of mental disease among both males and females through ages 35 to 44. In the latter group however alcoholic psychoses rise to a significant proportion among males, and manic-depressive psychoses assume a leading position among females. As we pass age 45 dementia praecox loses its relative numerical importance. Between ages 45 to 54 it is replaced among males by alcoholic psychoses and among females by involutional psychoses. After age 55 the leading categories among males are psychoses with cerebral arteriosclerosis and senile psychoses. Among females, the leading categories at ages 55 to 64 consist of involutional psychoses and psychoses with cerebral arteriosclerosis but at the oldest ages the senile psychoses predominate.

In general the rate of first admissions to hospitals for mental disease in New York State is higher for males than for females.

However there are some important variations in this respect. The senile psychoses involutional psychoses, and manic-depressive psychoses are more prevalent among females whereas general paresis alcoholic psychoses, and psychoses with cerebral arteriosclerosis are more prevalent among males.

The average age of first admissions has increased by 7.7 years since 1920. All of the major groups of mental disorders showed an increase in the average age at first admission since 1920 with the exception of dementia praecox. The latter showed an average decline of almost a year.

There has been a continued increase in the number of first admissions of advanced age (i.e., over 60) which has resulted in a continued increase in rates of first admission at such ages.

In general rates of first admissions have increased since 1920. General paresis and the manic-depressive psychoses furnish exceptions to this trend both having decreased significantly.

During the past decade there was a great increase in first admissions characterized as behavior disorders most of them falling in the age group under 15 years. Dementia praecox was the predominant group in early maturity. The involutional psychoses and the alcoholic psychoses occurred most frequently in the forties and fifties. After age 55 the arteriosclerotic and senile mental disorders appeared in frequencies that increased rapidly with age.

In general rates of first admissions increase with age and are higher for males than for females at corresponding ages. An exception occurred between ages 25 to 39 where the rates for males declined and were exceeded by those for females.

Several groups of mental disorders have characteristic trends of their own with respect to rates of first admission. Thus first admissions with general paresis rose to a maximum rate among males at ages 55 to 59. Females reached their maximum rate at an age about 5 years younger. Rates of first admission with alcoholic psychoses rose to a maximum among males at ages 45 to 49 and reached a maximum among females at ages 40 to 44. In the involutional psychoses males reached their maximum rate at ages 55 to 59 females at ages 50 to 54. In the manic-depressive psychoses females reached their maximum rates between 35 and 44, whereas the male rates remained relatively high until ages 50 to 54. Males reached their maximum rates of first admission with dementia praecox at ages 20 to 24. Females reached their maximum at ages 25 to 30.

BIOCHEMICAL, ENDOCRINOLOGIC, AND METABOLIC ASPECTS

128. *Studies on the Physiology of Awareness: Dynamic Metabolic Disturbances Associated with Hallucinations.* JOHN W. LOVETT DOUST AND MARTA E. SALNA. Toronto, Canada. Canad. M. A. J. *72*:803–808, June 1, 1955.

Little is known scientifically about hallucinations apart from their neurologic localization. They are of major importance to psychiatry and psychology, however, and further study of the epiphenomenologic atmosphere in which they occur should throw much needed light on the psychophysiologic processes involved in thought and feeling.

Stimulated by the findings of Stead (1945) on disturbances in ventilation and of Altschule (1951) on decreases in cerebral blood flow during hallucinations, a kinetic

investigation was carried out to determine what other metabolic activities were involved in this dysplasia of consciousness. Advantage was taken of a paranoid patient who was sufficiently co-operative to indicate whenever her auditory hallucinations were experienced and when her "voices" seemed to disappear.

It was found that considerable lability characterized the patient's physiologic responses and that evidence of this unstable homeostasis was temporally related to her awareness changes. Hallucinations were experienced as the arterial pressure fell, as the pulse pressure became constricted, as the capillary blood pressure rose, as the arterioles narrowed to lower the skin temperature, as the alveolar carbon dioxide levels rose and the alveolar oxygen tension fell, and as respiratory frequency and amplitude tended to diminish. No relationship was found between the changes in venous blood pressure and the onset of hallucinations.

In an extension of the investigation, it was found that a correlation existed between the reported intensity and vividness of the hallucinated experience and the extent of change in the pulse pressure values.

Discussion of the findings centers around the possible meaning of these results in terms of the economy of the organism and the time relationships of the psychophysiologic events. It is concluded that the attentive and emotional parameters of awareness are subject to measurement against a background of tissue anoxia. 16 references. 10 figures.—*Author's abstract.*

CLINICAL PSYCHIATRY

129. *Significance of Tuberculosis Among the Mentally Ill.* WALDO R. OECHSLI, Los Angeles, Calif. Medical Times. *83*:24–28, January 1955.

Despite the spectacular decrease in the tuberculosis death rate in the U. S., tuberculosis is still a challenging public health problem. This is particularly true among the inmates of mental institutions, who have constituted, in general, the most important reservoir of tuberculosis. Among the mentally ill, 1200 per 100,000 died of tuberculosis in 1948. The proportion in the rest of the population was 30 per 100,000. Morbidity has been excessively high also. In California, in 1946, a roentgen-ray survey of the mentally ill revealed 8.25 per cent with previously unrecognized tuberculosis, half of whom were judged to be active. Wherever adequate case-finding, segregation, and treatment programs have been put in effect in mental hospitals and continued on an annual basis, both morbidity and mortality rates have dropped considerably, though not to the rates for the general population.

Employees caring for mentally ill patients among whom there are those with unrecognized active tuberculosis are in an especially hazardous position, due to ignorance of the source of danger and the carelessness of the mentally ill. Employees should therefore be included in survey programs, be given adequate in-service training, and be given treatment and compensation if they acquire the disease. Those caring for mentally ill patients with active tuberculosis should have a roentgenogram taken every three months.

Mentally ill tuberculous patients, when they are discharged, should be placed in a tuberculosis sanatorium for continued treatment, if needed. If institutional treatment is not needed for their tuberculosis, a careful, periodic follow-up program should be arranged for the early discovery of reactivation of their disease, if it should occur. 11 references.—*Author's abstract.*

130. *On the Regular Relation Between Experience Content and Experience Form in Schizophrenia* (*Ueber gesetzmässiges Beziehungen von Erlebnisinhalt und Erlebnisform in der Schizophrenie*). RAOUL SCHINDLER. Wien Ztschr. f. Nervenh. *10*:2:195–230, December, 1954.

A study of 32 cases of schizophrenia with poor prognosis is presented to illustrate a new psychotherapeutic approach described as "bifocal group therapy." This combines a deep psychologic concept of parental relations and treatment within a closed group. The history of the patient is analyzed to illustrate the four phases of development. It is suggested that the schizophrenic process dynamically affects a hypotonic affectivity, rendering the acquisition of an affective relation impossible. Schizophrenic delusion is an affective process with hypotonic affectivity. The individual symbol is inaccurate and deceptive in relation to reality. In the artificial sphere of experience in the therapy group, conditions of transition correspond to the momentary affectivity of the patient. Conditions can be created that favor a certain affectivity. The course of such an experimentally conducted affect linkage is described. Correction of illusions occurs in stages correlated to the acquisition and use of the individual's affect phases. Complete correction and distancing can be achieved only after attaining critical affectivity from which the psychosis sprang. Treatment consists in reconstruction of an experimental background, deep psychology. Affectivity fluctuates "ataxically" in the hypertonic and hypotonic areas. In the third stage, stabilization in the hypertonic area is attained. Complete remission is obtained when the patient regains normotonic affectivity.

131. *Clinical Aspects of the Jealous Personality* (*Variétés de la personnalité des jaloux au regard de la clinique*). A. BROUSSEAU. L'Evolution psychiât. fasc. 1, p. 33–63, Jan.–March, 1955.

Jealousy, a normal reaction, becomes pathologic only when abnormally intensified. It is manifested by initial animation, delirious persuasion, incongruity of reactions, and extreme exaggeration. The patient is wholly irresponsive to evidence. The conditions leading up to jealousy are discussed, including secondary causes such as emotional hypersensitivity and fear of frustration. Jealousy is defined as resulting from a series of shocks following an emotional shock and sensitizing the mind of the patient. There is usually great imaginative power, and there may be visual hallucinations or dreams that may lead to acts of passion. Hereditary cases have been reported, in one instance involving three generations. Other secondary causes include inherited personality traits, inferiority complexes, exhaustion, alcohol, and cocaine. Special vulnerability is noted at puberty, during

the menopause, and in senility, as well as in certain organic diseases and conditions of the nervous system, head injuries, parkinsonism, cerebral hemorrhage or arteriosclerosis, physiologic disturbances, and senile dementia. Illustrative cases are cited.

Jealousy may be pretended or associated with perversion. There is a complex type in which jealousy is only the expression of a paranoid, inveigling, and neurotic personality. The jealous patient is prey to emotional hypersensitivity, a specific reaction releasing a defense rection. In cases of homicide in which the patient bursts into tears on the body of his victim, this is a reaction due less to grief than to hyperemotivity. Remorse rarely leads to suicide because the drive in such a patient is to live and to reaffirm himself. Melancholics are rarely jealous. Some degree of perversion, present in all patients suffering from pathologic jealousy, may take the form of a sado-masochistic relation to the object of passion.

132. *Comparative Clinical and Electrocyclic Observations on Twin Brothers Concordant as to Schizophrenia.* L. J. RAVITZ, Philadelphia, Pa. J. Nerv. & Ment. Dis. *121*:72–87, January, 1955.

The problem of periodic exacerbation and remission of symptoms in various emotionally disturbed states has been recently considered from the constructs and empiric operational procedures of the electrodynamic field theory, derived from field physics. In this report, a pair of schizophrenic male twins from a South Atlantic coastal region were studied over a five month period. The assessment included daily direct current potential determinations that were taken simultaneously on other patients and hospital personnel, the latter serving as a control group. Parallel clinical observations of daily fluctuations in mood and behavior were recorded and compared with the voltage shifts. Until the more disturbed twin began to improve symptomatically, he showed significantly higher direct current voltage gradients than his brother. For example, in February, 1951, the algebraic monthly means of the twins were +98.4 and +17.6 mv., respectively. Yet daily potential determinations revealed similar rhythmic variations, statistically significant beyond the 0.001 level. The magnitude of these oscillations corresponded not only to their contrasting thinking and behavior patterns, but also to regular, relatively stereotyped cyclic exacerbations of their psychotic symptoms—virtually independent of external provocation and immediate situational matters. In the less disturbed partner, periodic voltage increments also paralleled the resurgence of *folie à deux* manifestations when he was in the presence of his brother, providing what appears to be the first published case involving periodicity of such phenomena.

The significance of electrocyclic and *folie à deux* considerations was detailed relative to ecologic, psychodynamic, and genetic factors. As the twins possessed a rare combination of dissimilarities commonly found only in dizygotic pairs together with other features suggestive of monozygotic origin, unusual difficulties were encountered in determining zygocity by standard procedures. A thorough analysis of available data was made by Drs. Franz J. Kallmann and Gordon Allen, however, who concluded that sufficient evidence was at hand to classify the pair as monozygotic.

Among certain basic problems made articulate by this study is that of the frequently glib interpretations of clinical changes in any patient undergoing any form of treatment, whose reintegration may sometimes depend more on the galaxy of variables outside the therapeutic situation than has been hitherto suspected. Since direct current voltage gradients as well as the clinical states of patients seem related, in part, to cyclic changes occurring at the time, pertinent information concerning various psychiatric conditions may require the additional consideration of fundamental rhythms and temporal relationships of occurrences. The ultimate nature of such phenomena may be subsumed under the general heading of electrodynamic field forces, as exemplified by electrocyclic phenomena. Hence another link has been added to the chain of evidence suggesting that in deducing the theoretic component of its subject matter, any science struggling for maturity must look beyond factors amenable to direct apprehension into those basic entities and relationships which govern inert substances. 19 references. 3 figures. 2 tables. 1 box.—*Author's abstract.*

PSYCHIATRY AND GENERAL MEDICINE

133. *Psychological Correlations with Secondary Amenorrhea.* KENNETH KELLEY, GEORGE E. DANIELS, JOHN POE, RUTH EASSER AND RUSSELL MONROE, New York, N. Y. Psychosom. Med. *16*:129–149, March-April 1954.

Secondary amenorrhea, the pathologic absence of menstruation in a woman who has previously experienced normal menstrual cycles, is a symptom of a disorder, organic or functional, of three interdependent organs: the anterior pituitary, the ovaries, and the uterus. Four types of organic amenorrhea are: pituitary, ovarian, endometrial, and systemic.

It has been suggested that secondary amenorrhea may be produced by interference with the functioning of the organs involved by emotional conflict. A review of the literature shows this and indicates that the general line of thought is that emotional conflict can be, and is, registered cortically, and influences hormonal balance via the hypothalamic nuclei and the autonomic nervous system.

The present study was an attempt to see if any correlations could be found between secondary amenorrhea and emotional conflict. Subjects consisted of 26 women, who were compared with two series of controls consisting of 25 private patients who had never experienced amenorrhea and 20 "normal" women who had never experienced amenorrhea and had never consulted a psychiatrist. The three groups were comparable as to marital status and average age; the private patients had progressed generally further in school.

In the subjects, three outstanding characteristics were found from the psychiatric point of view. These were: (a) psychosexual immaturity, (b) severe oral conflict, and (c) schizoid patterns of thought. These characteristics were of far lesser incidence in the control group and all three never appeared together in the controls, while they did in the subjects.

The commonest psychopathologic mechanisms related to cessation of the menses

were conflicts over heterosexual impulses and guilt over them, and fear over female rivals in the family constellation.

Though these subjects may not be representative of amenorrheics as a whole, the study seems to demonstrate that in some amenorrheics psychic disturbances of the three kinds mentioned exist and register in the neurohumoral mechanisms in such a way as to produce an accompanying state of amenorrhea. There is evidence to suggest that in treatment, of whatever kind, of such patients there is real danger of a psychotic breakdown. 58 references. 7 tables—*Author's abstract.*

134. *Intellectual Changes Following Temporal Lobectomy for Psychomotor Epilepsy; Preliminary Communications.* VICTOR MEYER AND AUBREY J. YATES, London, England. J. Neurol. Neurosurg. & Psychiat. *18*:44–52, February 1955.

Results of temporal lobectomy for psychomotor epilepsy performed on a total of 18 patients are reported in this paper. There are 11 cases where surgery took place on the dominant hemisphere, 6 cases of operation on the nondominant hemisphere and one doubtful. Three types of tests were given with the intention of measuring changes in intelligence, learning, and retention. The tests were administered within a week before the operation and three weeks after operation (4 subjects were retested again one year after the operation).

Due to the small number of cases only tentative conclusions are drawn from this investigation:

1. General intelligence remains relatively unimpaired. Dominant cases, as a group, show a general decrease in scores on intelligence measures making use of verbal (Mill Hill and Wechsler Verbal Scale) or performance material (Wechsler Performance Scale). This decline, which in some dominant cases is significantly large, seems to be due to specific disabilities, i.e. visual discrimination for minute details and/or amnesic dysphasia. No such drop is manifested by the dominant cases on the Reven's Matrices test, which does not involve verbal ability and which one would expect to be relatively unaffected by the above-mentioned visual difficulties. The specific disabilities are probably temporary. For the nondominant cases the operation appears to have no immediate effect on intellectual functioning.

2. The learning test results indicate that a severe impairment of the ability to learn new associations between words and the meaning of new words using the auditory modality follows the operation on the dominant side. No such deficit seems to result after the operation on the nondominant side. The latter requires further study to be substantiated.

There are some tentative suggestions that the postoperative learning deficit may persist at least a year after the operation. Four cases tested after one year showed no improvement. Impaired learning is not a function of intelligence level. Rank order correlation between a learning test and measures of intelligence (dominant cases) yielded insignificant values both before and after the operation.

From available evidence it is tentatively argued that the learning decline following the operation can not be accounted for solely in terms of amnesic aphasia.

3. The small number of cases involved and the lack of a satisfactory learning

criterion allow only the tentative suggestion that retention may be impaired as well following the operation on the dominant side.

4. Further research on this problem is in progress. 26 references. 9 tables. —*Author's abstract.*

135. *Psychological Aspects of Uterine Dysfunction.* WILLIAM A. CRAMOND, Aberdeenshire, Scotland. Lancet *6851*:1241–1245, December 18, 1954.

For the purposes of this work, uterine dysfunction was defined as occurring in those cases of vertex presentation in primagravida where prolongation of labor beyond 24 hours, or difficulty in labor, was judged to be due solely to inadequate forces or to soft tissue resistance. The great majority of dysfunction labors investigated lasted longer than 48 hours and all ended either in caesarian section or forceps delivery. The incidence of major dysfunction at Aberdeen Maternity Hospital is 2.2 per cent. Fifty such cases were compared with a control group that was matched for age, height, and social class, and where there had been a spontaneous delivery in under 24 hours.

Following the work of Dershimer, Read, and others, it was thought that such cases of gross inertia might show definite emotional disturbances. The patients were interviewed in the first week of the puerperium for 2 to 4 hours and in addition, were asked to do the M.M.P.I. No significant differences were found between the two groups as regards previous psychosomatic illness (other than peptic ulcer), neuroticism in childhood, home environment during childhood and adolescence, sibling rivalry; school, social, and work records; mother's obstetric history; adjustment to marriage and relative fertility; rejection of the feminine role; psychosexual adjustment and development; dreams in pregnancy; anxiety in pregnancy; behavior in labor; attitude to breast-feeding; psychopathology; and previous psychoneurotic history.

There were significant differences noted between the two groups in their usual method of expressing tension, in the anxiety they showed at interview, and in the incidence of peptic ulcer. The lie score in the M.M.P.I. was significantly raised in the dysfunction group. A "dysfunction temperament" was described characterized by suppression or repression of tension feelings. These women were more conventional than normal, were reserved, and had difficulty in talking about themselves or their problems. The "dysfunction temperament" was found in 54 per cent of the dysfunction cases, compared with 12 per cent of the controls.

This investigation confirmed that uterine dysfunction is of multiple etiology, where age, prolongation of the gestation period, occipital-posterior presentation, and personality all play a greater or lesser part in any one case. 26 references. 1 table.—*Author's abstract.*

PSYCHOANALYSIS

136. *Re-Evaluation of the Libido Theory.* NORMAN REIDER. J. Am. Psychoanalyt. A. *3*:299–308, April, 1955.

This presents a review of a panel discussion on the libido theory in which many

aspects of the theory were considered, but not its relation to therapy. The relation of libido to ego functions and the effects of libidinous drives on these functions as well as the effects on culture were considered. Also considered was the relation of the libido theory to various diagnostic concepts. The author states that the panel was "characterized by its polemical nature."

TREATMENT

a. General Psychiatric Therapy

137. *Experience of a Psychiatric Consultant in a State Vocational Rehabilitation Program.* JEROME S. BEIGLER, Chicago, Ill. Psychiatric Quart. 29:250–261, April, 1955.

A review of the psychiatric rehabilitation program currently in operation at the Illinois Division of Vocational Rehabilitation is presented. The program consists of two main activities: (a) consultation on general rehabilitation problems (such as evaluation of amputee candidates for prostheses) and (b) subsidized short-term psychotherapy with private psychiatrists for medically indigent patients. Administrative and clinical problems encountered are outlined. Cases selected for psychotherapy were employable psychoneurotics. Four hundred and fifty patients were seen in consultation over a two year period. Various types of clinical problems are illustrated. A group of 171 patients with various types of neuroses were screened out as candidates for six months of subsidized psychotherapy. Follow-up records were obtained on 168. Thirty-seven (21 per cent of the 168) either did not follow the recommendations to begin treatment or terminated treatment after a few preliminary interviews. Eighteen patients (11 per cent) remained in treatment for three to five months; 65 (39 per cent) completed treatment at the end of the scheduled six months. An additional 48 (29 per cent) completed their subsidized treatments and were then able to continue on their own with their psychiatrists for additional periods of from three months to two years

Of the 65 who completed treatment at the end of the six month period, their physicians felt that 52 (80 per cent of the 65) had improved their employment status and 13 (20 per cent) had not; 54 (83 per cent) had achieved significant symptomatic improvement, and 11 (17 per cent) had not. Of the 48 patients who completed their subsidized treatment and continued in treatment with their physicians, employment had improved markedly or significantly in 43 cases (90 per cent of the 48) and was unimproved in 5 cases (10 per cent). Significant symptomatic changes occurred in 43 cases (90 per cent) and minimal changes in 5 (10 per cent). The effects of subsidization are discussed. Out of 118 patients in whom these effects were studied, 15 (13 per cent) had their treatment significantly hindered by subsidization, 44 (37 per cent) were unaffected therapeutically, and 59 (50 per cent) derived definite therapeutic help from the subsidization per se.

The vocational rehabilitation of the psychiatrically handicapped is predicated on correcting the psychiatric disability through psychotherapy rather than by occupational manipulations. 23 references.—*Author's abstract.*

138. *Occupational Therapy with "Refractory" Patients.* P. O. O'REILLY AND J. R. HANDFORTH, North Battleford, Saskatchewan. Am. J. Psychiat. *111*:763–766, April 1955.

The Problem: The difficulty in attracting and retaining occupational therapists has led to use of substitutes for the activities that would normally be directed by a trained therapist. This paper describes an attempt to use occupational therapy with a group of backward patients utilizing nurses in the role of therapists.

The Plan: The wards chosen for the pilot project housed the most deteriorated female patients in the hospital. Generally these patients were unoccupied, apart from some desultory domestic tasks on the ward. Their toilet habits were poor and they showed little interest in their own appearance or in those around them. From this group of 120 patients, a random selection of 14 patients was made with a view to ascertaining what, if any, effect might be expected from the introduction of more intensive, planned activities to these wards. This subgroup consisted of 11 schizophrenics, 1 epileptic, and 2 mental defectives. As an occupation with the greatest likelihood of arousing interest in these autistic patients, horticulture seemed the natural choice. Saskatchewan is an agricultural province and most of our patients are farm dwellers, whose lives are measured by the epochs of the soil. It was arranged that these 14 women should go out with a nurse each day and that during the summer months, they should till, sow, and cultivate a plot of land. In winter, they still went out together and had the task of keeping certain paths around the hospital clear of snow.

Results: (1) Effect on the nurses—initial skepticism has been replaced by enthusiasm. The nursing staff now feels that something can be done for these patients.

(2) Effect on the patients as a group—verbal and nonverbal communication has increased. There is a definite trend to greater cohesion. The group now holds together and group feeling has been communicated to the other patients.

(3) Effect on the patients individually—13 of the 14 patients showed a striking degree of improvement. While still mentally ill, they have relinquished their positions of isolation, they have become better adapted to the hospital environment. This improvement of interpersonal relationships has been accompanied by reduction of socially ill-tolerated habits to such a degree that in 2 cases the relatives wish the patients to return home. 3 references.—*Author's abstract.*

b. Drug Therapies

139. *Chlorpromazine as a Therapeutic Agent in Clinical Medicine.* JOHN H. MOYER, VERNON KINROSS-WRIGHT AND R. MILTON FINNEY, Houston, Tex. A.M.A. Arch. Int. Med. *95*:202–218, February, 1955.

Chlorpromazine appears to have a wide application in clinical medicine. The purpose of the current report was to present an analysis of the results obtained when this agent was used for the treatment of neuropsychiatric disorders, intractable hiccoughing, and for nausea and vomiting of diverse causation. In the neuropsychiatric group of patients, 412 unselected patients were studied. There were

195 hospitalized patients, the majority of whom had frank psychosis. There were 217 patients who were treated as office patients; the majority of whom suffered from neuroses of various types. A few psychotic patients were also treated as outpatients. The ambulatory patients were given doses of 5 to 50 mg. three to four times a day by mouth. Postprandial administration was preferred because of the frequent complaint of gastric irritation when given on an empty stomach. A few ambulatory patients were given as much as 400 mg. a day. The hospitalized patients were given 10 to 1600 mg./day and as much as 4000 mg. was used in one patient. Therapy was usually initiated with 50 mg. given intramuscularly every four to six hours. The dose was then progressively increased until an effective therapeutic response was obtained or it was felt that further increase in the dose was not warranted because of side effects.

Chlorpromazine has a wide application in neuropsychiatry. In large doses, it is an effective inhibitor of psychomotor excitement and agitation. At the same time, it has a stabilizing effect upon the mood. In both acute and chronic cases of schizophrenia, it frequently brings about total disappearance of symptoms for as long as one year. In small doses for the treatment of neuroses and other minor emotional disturbances, the drug appears to produce alleviation of symptoms.

Side reactions to the use of this drug were quite frequent. When small doses of 10 mg. were used there were rarely any noticeable changes. However, when doses in excess of 50 mg. were used, the side reactions were quite common. The majority of the patients who received the larger doses obtained some reduction in blood pressure. Dryness of the mouth was quite common. Some of the patients complained of interference with visual accommodation. An increase in appetite was frequently observed. Following these large doses, chlorpromazine sometimes produced a rather profound weakness. Moderate engorgement of the breast was seen in 12 patients. More serious side reactions consisted of dermatitis, confusion and disorientation, and a parkinsonian-like syndrome. Dermatitis was observed in 27 patients. The rash was more frequently confined to the arms but sometimes it spread over the entire body. Pruritus was marked. Frank exfoliative dermatitis was seen in 2 patients and in another an acneiform eruption was observed. All of the patients who developed dermatitis had a previous history of allergic responses to other agents. The rashes usually cleared up within one to two weeks after the drug was discontinued. Confusion with disorientation was considered to be the most serious complication and was thought to be an indication to stop the drug immediately. The parkinsonian-like syndrome was fairly typical and in 5 patients it was associated with a typical pill-rolling tremor. Usually the tremor was confined to the shoulder girdle.

Some general deductions can be drawn with regard to the use of chlorpromazine in neuropsychiatry. It is necessary to adjust the dosage of the drug to the individual patient. For example, in minor emotional disturbances, the side reactions frequently prohibited the use of large doses of the drug, whereas in psychotic patients, it is necessary to use rather large doses if an effective therapeutic result is to be obtained. After the patient has developed a state of remission, it is possible to

progressively reduce the dose of the drug, but usually a maintenance dose is necessary to keep the patient in a state of remission. On the whole, the more chronic the condition, the longer it is necessary to keep up relatively large doses of the drug.

Chlorpromazine was used for the treatment of nausea and vomiting in 352 patients. Smaller doses were used than in the neuropsychiatric patients. The initial dose was usually 10 mg. which was progressively increased to 50 mg. depending on the effectiveness with which nausea and vomiting were blocked. Usually it was necessary to give the first dose parenterally in order to stop the nausea and vomiting so that the oral medication could be retained. After cessation of nausea and vomiting, the drug was quite effective by the oral route. Of the 352 patients, nausea and vomiting were completely arrested in 243 and in only 28 patients was the drug a complete failure. In the remaining 82 patients, vomiting was reduced to a variable extent. Chlorpromazine was observed to arrest intractable hiccoughs in 8 of the 10 patients. Although the side effects associated with the use of chlorpromazine in treating nausea and vomiting were quite frequent, there were none that were serious. However, jaundice due to hepatic involvement has been observed by the authors in patients who received chlorpromazine but none of the patients in the current series developed this complication. Chlorpromazine is an effective antiemetic agent, useful in the treatment of a wide range of clinical conditions complicated by nausea and vomiting. 17 references. 2 figures. 4 tables.—*Author's abstract.*

c. Psychotherapy

140. *Analytic and Organismic Psychotherapy (Analytische und organismische Psychotherapie).* J. H. SCHULTZ, Berlin. Acta psychotherap., psychosom. et orthopaedagog. *1*:(1) 33–42, 1953.

The methods of psychotherapy in the strict sense of the word, dealing with the personality of the patient by psychologic methods and verbal intercourse (as in psychoanalysis), must be distinguished from methods that deal with the patient as a whole from the psychosomatic viewpoint. The author designates the latter as organismic psychotherapy. The methods of this form of psychotherapy include hypnosis, "autogenous" training by means of exercise, hydrotherapy, and pharmacotherapy combined with psychotherapy (as in narcohypnosis and narcoanalysis), Klaesi's sleep cure, shock treatments of various types, and also such procedures as leukotomy.

141. *Transference of the Physical Presence of the Physician.* PAUL LOWINGER AND PAUL E. HUSTON, Iowa City, Ia. J. Nerv. & Ment. Dis. *121*:250–256, March, 1955.

The historical development of the concept of transference is outlined. The experiment portion of the study is an attempt to explore the elements in the development of transference in psychotherapy by the technique of removing one variable from the psychotherapeutic situation: the physical presence of the physician. This is accomplished by placing the physician and patient in separate rooms which

allow two-way verbal communication and also allow the physician to observe the patient through a one-way mirror. The patient does not see the physician.

The results indicate that brief dynamic psychotherapy can be done in this special situation. Of 10 patients with neurotic problems, 2 had a remission of symptoms, 4 were improved, and 4 were unchanged. A transference relationship developed in this experiment situation demonstrating that transference is not dependent on the physical presence of the physician; that is, the nonverbal aspects of the behavior and attributes of the physician are not necessary to the development of a transference relationship. The transference relationship in the experiment situation is less emotionally intense than it would be with the physician and patient in the same room. The experiment technique may allow the physician a better understanding of the countertransference. The methodology of the experiment technique furnished a profitable approach to the problem of the objectification of the transference relationship. 58 references.—*Author's abstract.*

d. The "Shock" Therapies

142. *Activation of Cerebral Autonomic Integration Mechanisms in Relation to the Therapeutic Process in Electroshock.* EBBE CURTIS HOFF, Richmond, Va. Confinia neurol. *14*:306–313, 1954.

This paper summarizes experimental evidence for cerebrocortical integration of vasomotor functions and hormonal secretion in relation to the possible ways in which activation of these cortical, autonomic mechanisms may be related to the evidence transpiring in therapeutic electroshock. The author has shown that experimental stimulation of the frontal lobe in cats, monkeys, and other animals reduces elevation of the blood pressure and redistribution of the blood in the peripheral circulation, decreasing the supply to certain viscera such as the kidneys, and increasing the supply to the limbs. New evidence is also available to show that cortical stimulation induces the secretion of epinephrine. It is concluded that a well-defined cortical, autonomic mechanism with jurisdiction over vasomotor and secretory functions is available to therapeutic electroshock stimuli and is to be taken into account in evaluating the interacting variables affected by electroshock therapy. 7 references.—*Author's abstract.*

143. *Insulin Coma Therapy in Schizophrenia: A Fourteen Year Follow-Up Study.* FRANKLIN H. WEST AND EARL D. BOND, Philadelphia, Pa.; JAY T. SHURLEY, Austin, Tex., AND C. DIXON MEYERS, Mobile, Ala. Am. J. Psychiat. *111*:583–589, February 1955.

This study analyzes the results of insulin coma treatment given to 781 patients between 1936 and 1951 at the Pennsylvania Hospital. Immediate results of treatment showed 67.7 per cent improved or recovered, 7.9 per cent slightly improved, and 23.9 per cent unimproved. The percentage of well patients showed a steady decline from 67.7 per cent to 43 per cent at six months, 32 per cent at five years, and 20 per cent 14 years after treatment. A small group of patients remained well without relapse or further treatment; percentagewise this non-

relapsing group was no larger (11 to 19 per cent of those treated) than in a control group (16 to 18 per cent) of patients at the same hospital.

Seventy-seven per cent of the relapses reported occurred within a year of treatment, and 97 per cent of these first relapsed by the end of the fifth follow-up year. There was a group of patients, comprising between 12 to 24 per cent of those followed, who remained continuously ill without improvement during the follow-up period, regardless of subsequent therapy.

Immediate results were correlated with various factors thought to be of prognostic significance. A more favorable outcome was associated with a short duration of illness, found with a patient over 16 diagnosed as paranoid catatonic or undifferentiated schizophrenia, who showed a weight gain of over 10 pounds during treatment. It was concluded that insulin coma therapy was effective in restoring the schizophrenic patient to his prepsychotic adjustment, and that insulin treatment produced no better long-range results than those obtained in control groups. 10 references. 12 tables.—*Author's abstract.*

144. *Electroconvulsive Therapy in the Presence of Physical Defects.* WILLIAM K. MC KNIGHT, RALPH BURBRIDGE, AND PAUL GUTH, Philadelphia, Pa. J. Nerv. & Ment. Dis. *119*:478–491, June 1954.

The subject of evaluating various complicating physical conditions in the presence of mental illness from the standpoint of using electroconvulsive treatment is presented in a statistical study. Review of the literature indicates the tendency to eliminate more and more of the conditions previously considered to be contraindications. The standard Cerletti-Bini type of equipment and technique was used for most of the cases presented although the Reiter method was used for some. Curare was given routinely in this series of treatments using 1.00 cc. per 40 lbs. of body weight to a maximum amount of 3 cc. Curare was not used if there was any sensitivity reaction noted. Slight heaviness of the eyelids usually indicated an optimum effect.

In the seven year period from February, 1946 to January, 1953, 124 patients with physical disease constituting possible contraindications to electroconvulsive therapy were treated. Treatment was preceded by careful deliberation because of the severity of the mental disease.

Serious complications, possibly related to the electroconvulsive therapy, developed in only 2 of the 124 patients. One arteriosclerotic heart disease patient developed a myocardial infection and one patient contracted a lobar pneumonia which may not have been directly associated with the electroconvulsive treatment. Eighteen patients in the series were not given electroconvulsive treatment because of severe hypertensive disease, previous cerebrovascular accidents with marked residuals, hypertensive retinitis, recent myocardial infarct or severe cardiovascular changes including left axis deviation. In general, the low incidence of complications in this study is in agreement with the results of others and supports the growing opinion that there are few absolute contraindications to this treatment. 26 references. 3 tables.—*Author's abstract.*

neurology

CLINICAL NEUROLOGY

145. *Balint's Syndrome (Psychic Paralysis of Visual Fixation) and Its Minor Forms.* H. HECAEN AND J. DE AJURIAGUERRA, Paris, France. Brain *77*:373–400, Part III, 1954.

The syndrome described by Balint in 1909 contains three essential elements: psychic paralysis of the visual fixation, optical ataxia, and disturbance of visual attention. The few observations of this syndrome that exist in its complete form are briefly reviewed.

In the psychic paralysis of the visual fixation itself, we are of the opinion that two phases must be distinguished; first the wandering of the visual fixation in search of the object, and then its secondary fixation once the object has been met by chance.

Three new cases, 2 of which are anatomoclinical, are presented here, but they are minor forms of this syndrome. The three elements cited before are, nevertheless, present but in an inconspicuous or transitory form. Their presence, however, allows the differentiation from cases of simple spasmodic fixation.

The symptoms that often accompany this syndrome are recalled, especially certain tonic and motor phenomena of the upper extremities on the one hand, and the loss of coordination of the two parts of the body on the other hand.

Judging from the anatomoclinical cases in the literature and from our own personal cases, we think that, in the presence of Balint's syndrome, even in its minor form, the bilaterality of the lesion may be affirmed. The injury to the parieto-occipital regions seems constant. Rupture of the parieto-occipita connections may also be one of the necessary conditions for the production of the syndrome. Finally, the part played by the frontal lesions must not be underrated in the formation of the complete syndromes.

The various theories proposed to explain this syndrome are discussed. These are deficit of spontaneity of attention, oculomotor disturbances, and disturbance of perception. It seems essential not to oppose sensory and oculomotor mechanisms in the pathogenesis of this disorder and to look upon the demeanor of the subject as an attempt to adjust himself and counterbalance the disorganization of the function, disturbed in its two components. 24 references. 5 figures.—*Author's abstract.*

146. *Alexia (Ueber Alexie).* H. HOFF, I. GLONING AND K. GLONING. Wien Ztschr. f. Nervenh. *10*:149–162, Part 2, 1954.

In this article, the following three types of alexia are described: (1) Parietal or sensory alexia, in which partial symptoms of foci are in the gyrus angularis. In these cases, the patient is unable to take dictation because of sensory disturbances

but he is able to copy words. (2) Pure or optical alexia which is due to lesions of the gyrus lingualis, and is usually associated with disturbances in color sense or object agnosia, especially if the lesion extends to the basal occipital cortex. Here one has to deal with an optic symbol agnosia for words, in rarer instances for letters only. In contradistinction to parietal alexia, the patient can take dictation without difficulty, but he is not able to copy. (3) Congenital word blindness, a form of visual aphasia that is usually familial or sex-bound. In these cases, there is often a mid-position between parietal and optic agnosia. These patients always suffer from agraphia, and they cannot take dictation but copy without difficulty.

A unique case is described of an abortive type of congenital alexia, or dyslexia, which became manifest only after exhaustion from prolonged reading. There was probably some disturbance of dominance development; i.e., an inhibition of the brain. The authors believe that these three types of alexia are caused by some disturbance of symbol and scheme. 25 references. 1 table

147. *Bell's Palsy: A Clinical and Electromyographic Study.* D. TAVERNER, Leeds, England. Brain *78*:209–228, Part II, 1955.

Paralysis of the facial muscles, of the type known as Bell's palsy, is defined and the literature is discussed. One hundred consecutive cases of Bell's palsy were studied clinically and electromyographically. Fibrillation activity, indicative of denervation, was specifically sought for. Forty-five cases showed no evidence of denervation and recovered completely within 150 days (mean 51). Fifty-five cases showed evidence of denervation and none recovered within three years. Clinical findings such as pain, loss of taste, and herpes had no prognostic value. The denervated cases were studied in detail. Recovery began 7 to 180 days (mean 70) from onset compared with 3 to 21 days (mean 11) in the nondenervated group. All the denervated group showed sequelae in the form of associated movements and "spontaneous" twitching. The latter was always associated with blinking and a characteristic electromyographic appearance was observed. Contracture formation was found in 36 patients and crocodile tears in 6. There was no relationship between the degree of return of voluntary movement and the presence and severity of the various sequelae.

The mechanism of the blink-twitching is analyzed and electromyographic and clinical evidence is presented that it is due to the cross direction of regenerating axones. From this it is concluded that the theory of autocompression of the facial nerve in the stylomastoid canal as a result of inflammatory swelling is inadequate. It is therefore suggested that surgical decompression of the facial nerve is not a justified method of treatment for Bell's palsy. 78 references. 18 figures. 2 tables. —*Author's abstract.*

148. *Combined Trigeminal and Glossopharyngeal Neuralgia.* RICHARD J. BRZUSTOWICZ, Rochester, Minn. Neurol. *5*:1–10, January, 1955.

Trigeminal and glossopharyngeal neuralgia are the two major neuralgias that produce paroxysmal attacks of pain in the face. Trigeminal neuralgia occurs

about 75 times more frequently than does glossopharyngeal neuralgia. It usually appears after the age of 40 and women are affected more than men. The right side is involved more often than the left. The incidence of glossopharyngeal neuralgia is also greatest after the age of 40. The sexes are affected about equally and the two sides are affected about equally. The occurrence of glossopharyngeal and trigeminal neuralgia concurrently or sequentially is rare. Thirty-four cases of glossopharyngeal neuralgia were observed in this study at the Mayo Clinic from 1935 to 1949. Trigeminal neuralgia was also present in 9 of the 34 cases. Of the 9 patients with combined neuralgia, 6 were men and 3 were women, and all were more than 40 years old. The combined neuralgia affected the left side in 7 cases and the right side in 2 cases. In reviewing the various explanations for the cause of trigeminal neuralgia, the most plausible is that a peripheral ischemic mechanism affects either the nerve, ganglion, or the sensory root of the trigeminal nerve. A similar mechanism would have to be considered for neuralgia involving the glossopharyngeal nerve. The current surgical treatment of trigeminal neuralgia includes section of the trigeminal nerve sensory root, either by the transtemporal or suboccipital approach or, the more recent method proposed by Taarnhoj, decompressing the gasserian ganglion and the sensory root. The surgical treatment of glossopharyngeal neuralgia consists of sectioning the glossopharyngeal nerve by means of a suboccipital approach. A patient having combined trigeminal and glossopharyngeal neuralgia would probably best be treated by the trigeminal tractotomy of Sjöqvist. 28 references. 1 figure. 3 tables.—*Author's abstract.*

For Reference

149. *Tactile Adaptation Disturbances in Lesions of the Nervous System.* ROBERT JAFFE, New York, N. Y. Arch. Neurol. & Psychiat. *73*:57–65, January 1955. 25 references. 1 figure. 7 tables.—*Author's Abstract.*

ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM

150. *Structural Analysis of the Human Hypothalamus* (*Strukturanalyse des menschlichen Hypothalamus*). K. FEREMUTSCH, Bern, Switzerland. Monatschr. f. Psychiat. u. Neurol. *130*:1:1–84, July, 1955.

The human hypothalamus represents a small region of the brain, but one whose cellular structure is extremely differentiated. A cytoarchitectonic organization may be shown, which contains the following parts:

(1) A matrix of small-celled grey matter that extends through the entire hypothalamus, the grey ground-substance. This may be divided into periventricular and lateral formations, which are organized differently cytoarchitectonically but show many common features in their structural characters.

(2) The large-celled nuclei that are defined grey areas with a local and typical accumulation of cells, but also apart from that, constitute extended regions of dispersal, infiltrating the grey ground-substance.

Despite this anatomization, one must regard the hypothalamus as a unified whole that is cytoarchitectonically polymorphous but constitutes in itself a morphologic unity. 30 references. 6 tables. 53 plates.

151. *Some Psychiatric Implications of the Centrencephalic System.* NATHAN ROSENZWEIG, Ann Arbor, Mich. Univ. Mich. Med. Bull. *21*:64–72, March, 1955.

This is a review of recent investigations of the centrencephalic system, with emphasis on its function as a central integrating mechanism of the brain that correlates sensory stimuli with "affective" and visceral responses. Such physiologic activity may be translated into a psychodynamic nomenclature, which would aid the various fields of research by facilitating an understanding between investigators in these various fields. 20 references. 2 figures.

CEREBROSPINAL FLUID

152. *The Nature and Clinical Significance of Pigments in the Cerebrospinal Fluid.* LAWRENCE J. BARROWS, FRANCIS T. HUNTER AND BETTY Q. BANKER, Boston, Mass. Brain *78*:59–80, Part I, 1955.

A systematic study of the pigments responsible for the coloration of cerebrospinal fluid was made by spectrophotometric and chemical determinations. The determination of the nature of pigments in cerebrospinal fluid, the part they play in the production of xanthochromia, and their clinical significance were the principal objectives of the study. A constant recording spectrophotometer was used to study approximately 149 fluids from 68 patients. The fluids were divided into four groups according to the nature of the pathologic process. These were (1) hemorrhage; subarachnoid, ventricular, or subdural; (2) block; spinal, subarachnoid, or ventricular; (3) liver disease with jaundice; and (4) miscellaneous; subdural effusions and cystic fluids.

Oxyhemoglobin, bilirubin, and methemoglobin are the pigments which commonly occur in colored cerebrospinal fluid. When hemolysis takes place in the subarachnoid space, oxyhemoglobin is the first pigment to appear, and it may be detected as soon as two hours after its appearance. This pigment increases during the first few days and in the absence of further hemorrhage disappears in seven to nine days. Bilirubin appears in two to three days and increases in amount as oxyhemoglobin decreases. The common feature noted in all cases in which methemoglobin was formed was the encapsulation of a mass of extruded blood. Bilirubin was the pigment detected in cases of block, subdural effusions, and cysts. In the jaundiced patients, bilirubin was the only pigment responsible for coloration. The level of elevated serum bilirubin and the duration of jaundice were important factors.

The spectrophotometric data were confirmed by the following three simple biochemical tests easily performed in a ward laboratory: the benzidine reaction for oxyhemoglobin, the modified van den Bergh test for bilirubin, and the potassium cyanide test for methemoglobin. It is important to note that the promptly centri-

fuged fluid in so-called "traumatic taps" gave negative tests for pigments. Thus any discoloration in a promptly centrifuged specimen should cause suspicion of a pathologic lesion. 20 references. 5 figures. 9 tables.—*Author's abstract.*

DEGENERATIVE DISEASES OF THE NERVOUS SYSTEM

153. *Treatment of Multiple Sclerosis with Low-Fat Diet: Results of Five and One-Half Years' Experience.* ROY L. SWANK, Portland, Ore. A.M.A. Arch. Neurol. & Psychiat. *73*:631–644, June, 1955.

Five and one-half years' experience with a low fat diet in the treatment of multiple sclerosis is summarized. This diet appears to lessen the severity of the disease by reducing the frequency and severity of the exacerbations. Its usefulness is greatest early in the disease, before significant disability and a steady progression of symptoms have developed. The period of observation has now been sufficiently long to give us some confidence in our observations, although we must not overlook the fact that, since we are dealing with a disease having an average duration of perhaps 20 to 25 years, any conclusions concerning its therapy must still be tentative.

The mechanism by which the fat intake might influence the disease is discussed. Serious consideration is given to the hypothesis that patients with multiple sclerosis have a basic defect in the suspension stability of their blood that is upset by the hyperlipemia following heavy fat meals. 41 references. 1 figure. 1 table.—*Author's abstract.*

DISEASES AND INJURIES OF THE SPINAL CORD AND PERIPHERAL NERVES

154. *Etiologic Considerations, Anatomic Findings, and Therapeutic Remarks Concerning Cerebral Phlebitis (Considérations étiologiques, documents anatomiques, et remarques thérapeutiques concernant les phlébites cérébrales).* P. F. GIRARD AND M. DEVIC. Rev. neurol. *90*:6:863–868, 1954.

The authors present laboratory studies to clarify the etiology and anatomy of cerebral phlebitis. They are usually complications of otitis, rhinopharyngitis, or sinusitis. In cases of acute encephalitis, the infectious focus may be missed. Upon sudden onset of an encephalitis, a dental infection or masked otitis may be forgotten. Also the symptoms of encephalitis may precede the signs of otitis. Infection at a distance suggests venous embolism or venous septicemia. Cerebral phlebitis has been known to follow malaria therapy of general paralysis. Venous thrombosis seen in infectious meningitis is rare in subacute tuberculous or syphilitic meningitis. Venous lesions are relatively frequent in acute purulent meningitis. There is no infectious factor in the postoperative cerebral phlebitis encountered in neurosurgery.

Following a description of the anatomic lesions encountered, it is suggested that

antibiotics may be partly responsible for the increased incidence of cerebral phlebitis. Antibiotics are indicated nevertheless.

Because of the incidence of hemorrhagic lesions in venous thrombosis, it has been suggested that the use of anticoagulants would be dangerous. The present writers emphasize that such lesions are not due to hypocoagulation of the blood but to venous obliteration. Heparin improves the return circulation in phlebitis of the legs, and when pulmonary infarct develops it diminishes hemoptysis. For this reason the present authors use heparin or tromexane in all cases of clinically acute encephalitis in which cerebral phlebitis is suspected. They have had no accidents. Heparin seems to have a favorable effect on the encephalitic symptoms, and it reduces the severity of neurologic and psychologic sequelae. Heparin or tromexane is, therefore, used together with antibiotics and hypertonic glucose serum. It is important to recognize cerebral venous thrombosis during the very first days. This treatment affords possibilities lacking in the therapeutic approach to other encephalitic syndromes.

155. *Neurologic Sequelae of Tuberculous Meningitis* (*Les sequelles neurologiques de la méningite tuberculeuse*). RENÉ MOREAU, GEORGES BOUDIN AND FRANÇOIS LHERMITTE. Rev. neurol. *90*:6:687–711, 1954.

Attention is directed to the fact that, whereas autopsy findings in tuberculous meningitis show severe changes in the neuraxes, the number of patients recovering without sequelae is large. Very few such cases have been reported, and most of them before the advent of the isoniazide treatment. Of 350 infants treated at the Margency Center, 14 per cent had the following neurologic sequelae; hemiplegia, 26; paraplegia, 4; ocular paresis, 8; epilepsy, 2; atrophic pallor of the discs, 21; and cerebellar syndrome, 1. The various types of sequelae are described, including hemiplegia, paraplegia, paralysis of the cranial nerves, epilepsy, peripheral paralysis, headache, the diencephalohypophyseal syndrome, intracranial calcifications, and electroencephalographic changes. Meningeal lesions play an important part in some sequelae, as does tuberculoma, which seems to have increased in incidence since the advent of antibiotics. The tuberculoma is usually multiple and causes diverse focal syndromes.

Circulatory disturbances may be caused by obliterating arteritis, and less frequently by venous obliteration. It is suggested that latent changes may become exacerbated later and interfere with cerebral circulation. It is known that silent hydraulic disturbances may eventually lead to cerebral atrophy. In patients with focal syndromes, autopsy has frequently revealed multiple disseminated tubercles in the cerebrum and cerebral trunk. Only after continued investigation can we hope to explain these conditions. 30 references. 4 tables. 7 figures.

For Reference

156. *A Review: Recent Concepts in Neuritis.* ROY E. CLAUSEN, JR., AND HENRY W. HOGAN, Denver, Colo. Am. J. M. Sc. *229*:103–115, January 1955. 62 references.—*Author's abstract.*

ELECTROENCEPHALOGRAPHY

157. *Electroencephalographic Rhythms from the Depths of the Frontal Lobe in 60 Psychotic Patients.* CARL W. SEM-JACOBSEN, MAGNUS C. PETERSEN, JORGE A. LAZARTE, HENRY W. DODGE, JR., AND COLIN B. HOLMAN, Rochester, Minn. EEG Clin. Neurophysiol. *7*:193–210, May 1955.

Among 60 psychotic patients, recordings were made from 1,842 intracerebral contacts; thus: frontal lobe, 1,600; temporal, 64; occipital, 91; parietal and diencephalon, 58; cerebellum, 16; olfactory bulb, 13.

Depth recordings revealed some high-voltage and low-voltage rhythms (not encountered in simultaneous scalp recordings) abnormal by conventional surface electroencephalographic standards.

Waves consistently present in the depth of the frontal lobe were: (1) alpha-like 8 to 12 c/sec. waves in uppermost layers; (2) arrhythmic 2 to 4 c/sec. waves maximal in ventral medial portions; (3) fast 25 c/sec. waves maximal in lateral portions; (4) rhythmic 26 to 38 c/sec. waves from the olfactory bulb; and (5) flat recordings, probably from central white matter.

Of 40 patients with normal preliminary scalp recordings 23 showed bilateral rhythmic bursts of high voltage, 2 to 5 c/sec. waves occasionally simulating slow sharp waves in depth recordings.

To assess the properties of the rhythms encountered in depth, recordings were made under varied conditions (mental activity, hyperventilation, sleep, ether and barbiturate anesthesia, and photic, Metrazol, smell and electrical stimulation).

Light ether and thiopental anesthesia increased the voltage of the 25 c/sec. waves. Ether increased the frequency. Thiopental decreased it. Deep anesthesia further enhanced the changes in frequency.

Evoked olfactory potentials were not abolished by deep anesthesia. Ether increased their frequency up to 48, and thiopental sodium decreased it to 17. 16 references. 16 figures. 3 tables.—*Author's abstract.*

HEAD INJURIES

158. *Clinical and Laboratory Findings in Two Hundred Head Injuries.* MILTON H. KIBBE, Springfield, Mass. Neurol. *5*:336–352, May, 1955.

The patients were selected at random from World War II casualties at Cushing General Hospital from June 1944 to January 1946. These cases were subdivided into open head injuries without penetration of the dura, open head injuries with penetration of the dura, and closed head injuries. The mode and area of injury were carefully recorded.

Part one reports the results of the clinical and laboratory findings according to the region of the brain injured. The clinical factors and the degree of impairment studied included duration of unconsciousness, neurologic signs, electroencephalographic findings, spinal fluid total protein, mental changes, epileptiform seizures, aphasia, degree of brain damage, headaches and dizziness, and disposition. The areas of the brain showing the most severe degrees of changes in the open non-

penetrating injuries were right parietal, left frontal, left temporal, and left frontal-temporal areas. In the open, penetrating head injuries, both parietal, left temporal, left frontal, and multilobular parietal injuries appeared to cause the most severe damages. In the closed head injuries, the most severe changes were seen in parietal, left temporal, and bilateral occipital injuries. The most significant clinical and laboratory findings indicative of cerebral damage were in the following order: disposition, spinal fluid total protein, duration of unconsciousness, electroencephalographic changes, degree of brain damage, neurologic findings, and headaches and dizzy spells. It was noted that headaches and dizzy spells occurred more often in closed head injuries than open. The electroencephalographic findings were more severe in the open, penetrating injuries, and the number of post-traumatic epileptic seizures was greater in this type of injury.

Part two is an analysis of the relationship between the various clinical and laboratory findings. In the open, nonpenetrating injuries, the most positive correlation was present in the following order: degree of brain damage, disposition, headaches and dizzy spells, spinal fluid total protein, electroencephalographic findings, and duration of unconsciousness. The most positive relationship in the open, penetrating injuries existed in duration of unconsciousness, neurologic findings, spinal fluid total protein, disposition, and electroencephalographic changes. The only close correlations in the closed head injuries were between degree of brain damage, neurologic findings, electroencephalographic changes, and mental changes.

The overall impression gained from this study was that the clinical and laboratory findings of duration of unconsciousness, degree of brain damage, spinal fluid total protein, and electroencephalographic changes were the most significant factors to be considered in head injuries, especially of the open, penetrating types. 6 tables. *—Author's abstract.*

INTRACRANIAL TUMORS

159. *The Functional Symptoms of Organic Disease of the Brain.* E. A. BLAKE PRITCHARD, London, England. Lancet. *6860*:633–666, February 1955.

The author has described 4 patients in whom symptoms of general behavior disturbance, diagnosed at the time as hysterical, occurred in patients in whom there were at that time no clear indications of any intracranial lesion: these were patients who shortly afterward developed signs of an intracranial neoplasm and who died from the effects of this neoplasm. He stresses the fact that these symptoms of behavior disturbance may be in themselves identical in patients suffering from a psychogenic disorder, and patients suffering from cortical disintegration due to physical changes. For this reason such symptoms should in no case be described as hysterical, since this clinical label necessarily involves the diagnosis of a psychogenic origin. They should in all cases, psychogenic and organic, be described as functional, and reasons are submitted for regarding this as being peculiarly appropriate for the description of symptoms which are disabling in their significance to the patient. 4 references.—*Author's abstract.*

NEURORADIOLOGY

160. *The Association of Dementia with Radiologically Demonstrated Cerebral Atrophy.* R. H. GOSLING, London, England. J. Neurol., Neurosurg. & Psychiat. *18*:129–133, May, 1955.

A survey was made retrospectively of lumbar air encephalograms performed on patients presenting dementia beginning after the age of 45. Cases of cerebral tumor, head injury, cerebrovascular accident, and degenerative conditions with systematic involvement of the central nervous system were excluded. Of 68 cases, 85 per cent showed cerebral atrophy according to widely accepted radiologic criteria. This proportion was not changed after a more vigorous attempt to exclude cases of dementia associated with cerebral arteriosclerosis was made. Closer inspection of 10 cases of dementia that did not show atrophy revealed that both the dementia and the normal air encephalogram were doubtful.

During the same period and covering the same age group, 213 cases without dementia were investigated with an air encephalogram; 11 per cent showed an unexplained cerebral atrophy. These cases were usually labelled "epilepsy of late onset," but further examination was not possible.

Scrutiny of the air encephalograms showed that the presence of any of the following radiologic signs correlated most closely with the presence of dementia: cortical sulci greater than 0.5 cm., air trapped in the insular region of the cortex, and enlargement of one or both of the lateral ventricles particularly marked in the region of the trigone, whether or not they were enlarged elsewhere.

Using these signs, three out of four cases were correctly predicted to have dementia in a second small series. 10 references. 1 figure. 6 tables.—*Author's abstract.*

TREATMENT

161. *Reserpine in the Treatment of Huntington's Chorea.* J. H. CHANDLER, Ann Arbor, Mich. Univ. Mich. Med. Bull. *21*:95–100, April, 1955.

Two patients, half sisters, were treated for Huntington's chorea with reserpine. The initial dosage of reserpine was 0.25 mg. three times a day; this was increased after a month to 0.5 mg. four times a day. The first patient was 41 years old when treatment was begun. After the first month of treatment, there was definite subjective improvement and some decrease in the involuntary movements. After the second month of treatment, improvement was still more marked; the involuntary movements had ceased almost completely, and the patient was able to do her housework efficiently. In the second case, treatment was begun when the patient was 50 years old. Improvement was also noted in this patient after one month of treatment, and was still greater at the end of the second and third month of treatment; the involuntary movements ceased almost entirely. After three months of treatment, the patient became depressed and attempted suicide. Reserpine was discontinued, and the involuntary movements recurred. The depression was not

relieved. In this case there was a history of prolonged depression and an attempt at suicide before reserpine was used. Two other patients with Huntington's chorea are now under treatment with reserpine, and the results are sufficiently encouraging to warrant further study of the treatment in such cases. 7 references.

162. *Urecholine in Myasthenia Gravis.* HERBERT SCHWARZ, Montreal, Canada. Canad. M.A.J. *72*:346–351, March 1, 1955.

Although the etiology of myasthenia gravis is still unknown, there is some evidence to suggest that in myasthenia the precipitating factor centers around some disturbance of acetylcholine mechanism with a resulting failure in muscular contraction. This may be due to the lack of precursor substances for acetycholine synthesis, the lack of potentiator substances, or an excess of inactivator or competitor substances.

Acetylcholine itself has been tried experimentally in myasthenia gravis, but when introduced into the body it is too rapidly destroyed to allow of a therapeutic evaluation. However, some of the choline esters that are more stable and resemble acetylcholine in action were tried in 1937 by Fraser and his associates in 2 patients with myasthenia gravis, and they observed some recovery of muscle power in their patients following the use of these drugs.

The two choline esters used by Fraser were tried by us for a short time on several patients with myasthenia gravis, but were soon abandoned because of their undesirable manifestations.

Eventually a choline ester was found (urethane β-methylcholine chloride*) which was singularly free of the undesirable effects of acetyl β-methylcholine and carbaminoylcholine, and at the same time was found to increase the muscle strength and lower the prostigmine requirement in the majority of our patients with myasthenia gravis. The effects of this choline ester were evaluated on 10 patients with myasthenia gravis intermittently over a three year period.

On a daily dose of 200 to 250 mg. of urethane β-methylcholine chloride, there was usually a latent period of 5 to 14 days before a definite increase in muscle strength could be observed. This improvement was most noticeable in the small muscles innervated by the cranial outflow, the intercostals, and peripheral musculature, in that order, and was not diminished by prostigmine resistance. No such beneficial changes were observed in these patients when a placebo was substituted for urethane β-methylcholine chloride for periods varying from one to three months. In some of our patients a striking increase in muscle strength has been repeatedly obtained with urethane β-methylcholine chloride, e.g., relief of myasthenic facies, improved swallowing and speech, ability to perform intricate work, and increased strength of arms and legs. Later, when urethane β-methylcholine chloride was discontinued or a placebo was substituted a relapse occurred, thus leaving no doubt of its efficacy in this disease. After urethane β-methylcholine chloride is discontinued there is usually a latent period of 7 to 14 days before the deterioration in

*The trade name of Merck & Co., Inc. for urethane β-methylcholine chloride is urecholine.

muscle strength sets in. Coincidental with the clinical improvement in the 9 patients, their need for prostigmine lessened and they required no ephedrine. This improvement in the muscle strength of patients on urethane β-methylcholine chloride and less prostigmine was greater and was sustained longer than that observed on larger doses of prostigmine alone, or prostigmine with ephedrine.

An attempt to maintain 2 patients on very large doses (1 Gm. daily) of urethane β-methylcholine chloride alone without prostigmine was unsuccessful. Although much stronger, they still required some prostigmine. It is remarkable that, apart from sweating, no toxic phenomena were observed in the 2 myasthenia patients receiving this huge amount of drug.

At a later date, the same 2 patients had their thymus glands removed and six months later they were tried again with urethane β-methylcholine chloride. In 1, thymectomy produced no improvement; if anything, her weakness increased and she required more prostigmine. Urethane β-methylcholine chloride, given to this patient in a 200 mg. daily dose, once again increased her muscle strength and reduced the prostigmine intake.

The second patient, six months after thymectomy, could be classified as belonging to the Group B of Keynes: "virtually well, minimal prostigmine dosage." When tried with 150 mg. of urethane β-methylcholine chloride, she complained of a "jittery feeling, weakness, sweating, and fainting." An attempt to administer urethane β-methylcholine chloride to this patient on two different occasions was unsuccessful. In a third patient urethane β-methylcholine chloride in 175 mg. doses daily was used for 14 days prior to the thymectomy. In her case some of the bulbar manifestations of myasthenia as regards speech, swallowing, and breathing, which were responding poorly to prostigmine, improved while on urethane β-methylcholine chloride, and she required less prostigmine. While she was on this combined prostigmine-urethane β-methylcholine chloride therapy, a successful thymectomy was performed. Three months after the operation there was a noticeable improvement in this patient's strength, and she required less prostigmine. Urethane β-methylcholine chloride in a 200 mg. dose reduced her prostigmine intake further, and produced an additional increase in muscle strength.

A fourth patient, not on urethane β-methylcholine chloride before, six weeks after the thymectomy operation, was given a 200 mg. dose of the drug. His swallowing and speech were improved, and he required less prostigmine.

In 4 women the usual deterioration in muscle strength, which slightly preceded and immediately followed the onset of menstrual flow, was absent when on urethane β-methylcholine chloride.

In 3 patients who had been experiencing some abdominal cramps with prostigmine, administration of the drug and the subsequent reduction in prostigmine abolished this effect.

The observation that a choline ester behaving like acetylcholine when introduced into the body can produce an improvement in the muscle strength of myasthenia patients may be a valuable clue to the understanding of this disease. It suggests that some defect of acetylcholine function is probably present in my-

asthenia gravis. The mechanism of this phenomenon is not clear. 8 references. 1 table.—*Author's abstract.*

163. *Kemadrin in the Treatment of Parkinsonism.* ROBERT S. SCHWAB AND MORRIS E. CHAFETZ, Boston, Mass. Neurol. 5:273–277, April 1955.

Because of the individuality of response of patients to parkinsonian drugs, newer drugs are constantly being tried out. Kemadrin, procyclidine hydrochloride, was compared to the available similar drugs, Artane and Pagitane, for a period of 3 to 20 months in 87 patients suffering from postencephalitic and other forms of parkinsonism. By means of gradual substitution, Kemadrin was introduced into the patient's therapy. Usually a dosage of 2.5 mg. three times a day was started in place of another medication. If this was well tolerated, the dosage increase was to 5 mg. three times a day and occasionally 5 mg. before retiring. Some patients tolerated a total dosage of from 40 to 60 mg. per day. Less gastric discomfort was noted when the medication was administered with food in the stomach.

Side effects of Kemadrin were similar to those of Artane, consisting of dryness of the mouth, headache, visual blurring, and giddiness. Confusion and delirium occurred in elderly patients as with Artane, but fewer disturbances were produced by Kemadrin.

In our series, 38 patients were considerably improved with Kemadrin. Of these 38, 12 patients received beneficial results from Kemadrin alone, while the other 26 patients achieved beneficial results with the Kemadrin when it was combined with Thephorin or Benadryl in doses of 75 to 100 mg. per day. Kemadrin was 46 per cent effective, while Artane and Pagitane were 33½ per cent effective in our series. 5 references. 1 figure.—*Author's abstract.*

164. *Effect of Cortisone and Hydrocortisone in Hemiplegia After Cerebral Infarction; 1. Preliminary Report, with Special Reference to Spasticity.* R. F. SHEELY, C. H. JOHNSON, J. J. BAKER AND RODNEY HARBAUGH, Gettysburg, Pa. J.A.M.A. *158*:803–806, July 9, 1955.

Four patients were treated with hydrocortisone, and 1 patient was treated with cortisone after cerebral infarction. Four of these patients had residual spastic defects from old cerebral infarctions; 2 patients suffered acute episodes of cerebral infarction. The patients ranged from 59 to 80 years of age; the average age was 68.6 years. Three of the patients had associated heart disease with previous episodes of congestive heart failure. Diabetes mellitus was present in 1 patient. Mild azotemia and systolic hypertension were present in 2 patients.

A definite pattern of response was observed in the 4 patients exhibiting residual spastic defects. Three to four days after administration of corticosteroids in dosage of 300 mg. in the first 24 hour period, 200 mg. in the second 24 hour period, 100 mg. on the third day, and thereafter 25 to 100 mg. daily for an average dosage of 2,130 mg. over an average period of 24.6 days, a decreased spasticity resulted. The muscle groups were more pliable and flexible. The extremities were more amenable

to active and passive movements. The disappearance of edema, so commonly seen in the paralyzed extremity, was noted. There was improved appetite and sense of well-being. Previous contractures were not improved. Deep reflexes were not altered. Aphasia, present in 1 case, was not improved.

Indifference, apathy, and the moribund state of 2 patients with acute cerebral infarction were changed to alertness and responsiveness 72 hours after the start of treatment with corticosteroids. In the patient with acute cerebrovascular accident, corticosteroids were not used until spasticity was noted in the paralyzed extremities. The painful spasticity that occurs in the subacute stage of cerebral infarction appeared to be controlled with hydrocortisone and cortisone.

In general, no adverse or untoward side effects were observed in any of these patients. During the period of administration of the corticosteroids, there were no adverse effects noted on existing hypertension, glucose metabolism, prothrombin content, and water or electrolyte balance.

Clinical observations indicated that the analgesic effects, the anti-inflammatory effects, and the decreased permeability of blood vessel walls seen after the use of corticosteroids may have played paramount roles in the effects recorded. 4 references. 1 table.—*Author's abstract.*

BOOK REVIEWS

The Clinical Interview, Volume II: Therapy, A Method of Teaching Sector Psychotherapy. FELIX DEUTSCH, M.D. AND WILLIAM F. MURPHY, M.D. New York, International Universities Press, Inc., 1955. Price $7.50.

The second volume of *The Clinical Interview* gives a clear and stimulating account of the theory and techniques used in the goal-directed, brief therapeutic procedure that the authors call "sector psychotherapy." This approach is based on an understanding of the unconscious meaning of the patient's communications. However, the therapist is no passive listener, but chooses one significant sector of the patient's symptomatology for exploration, then actively guides the patient's associations along lines related to these symptoms, so that he gains understanding of his relationship to figures in the present in terms of those in the past. This method is a planned therapy; regarding its aim, it is a limited therapy, although indirectly it is believed to influence the entire personality.

The authors emphasize the differences between sector and other types of psychotherapy, more particularly psychoanalysis. In the former, for instance, the positive transference is induced and maintained throughout; confrontation rather than interpretation is used, and "associative anamnesis" rather than free association. The authors frankly admit that with their method relapses and recrudescences can and do occur, and at such times the patient is expected to appeal for additional help. However, they consider that sector therapy can be of tremendous benefit in cases where insight therapy is indicated but where psychoanalysis is unavailable or inadvisable. In fact, they have found it effective even with psychopaths.

The book contains a wealth of clinical examples and practical suggestions; such

as how to choose a sector, how to enlarge the associative material centering around key words, and how to make each interview a complete entity. Hints are given as to ways of developing a positive transference relationship by speaking the patient's language and at times even adopting his posture. Notable is the analysis of verbatim recorded interviews that occupies a large body of the book. Five of these concern the treatment of a case of essential hypertension. Annotations of the interview material reveal what the therapist sees of unconscious fantasy as expressed in manifest content, and show the ways he uses such knowledge to word his comments so that he can "split the patient's ego" (into an adult portion that is strengthened, and an infantile portion that is tolerated but not encouraged), or in general convey the meaning of the unconscious material to the patient in utilizable fashion. In these annotations lies the real meat of the book.

The purpose of the book as stated by the authors is to "supply the student with a guide for therapeutic interviews." The method has been used for some years by the authors in instructing resident psychiatrists in the Boston area with apparently gratifying results. As a "how-to" book for beginners in therapy it might well mislead them into considering the method deceptively easy. Without a broad and sound training in dynamics, the psychiatric resident, however alert, would lack the necessary ability to understand the latent meaning of the patient's productions; and this is the basis for this type of therapy. The volume could be of inestimable value in impressing the student with the subtleties of the fine art of listening, the need for understanding what is going on during the interview in both patient and physician, and the vastness of the knowledge of the unconscious that lies behind the therapeutic skill of such analysts as the authors. This method would also impose discipline on the beginner, since it emphasizes the fact that the therapist must, at all times, consciously control the therapeutic situation, and not let himself be drawn into the pseudoreality of the patient. It is heartening to read such a brilliant presentation of a well thought out therapeutic approach.

—*A. Genevieve McEldowney, M.D.*

The Psychological Variables in Human Cancer. A Symposium. Edited by JOSEPH A. GENGERELLI AND FRANK J. KIRKNER. Berkeley, Calif., University of California Press, 1954. Pp. 135. Price $3.00.

This symposium attempts to present and evaluate the results of some studies of the relationships existing between personality variables and human cancer.

Dr. Max Cutler, formerly director of the Chicago Tumor Institute, and a group of psychoanalysts from the Chicago Institute of Psychoanalysis studied 40 patients with breast cancer. The study clearly indicates the need for greater understanding of the role of normal and pathologic emotional factors upon the body's defensive reaction to cancer. The symposium is devoted to this report and a discussion of studies carried out by the University of California at Los Angeles School of Medicine and the Birmingham and Long Beach Veterans Administration Hospital.

Psychologic tests showed patients who had fast growing cancer also had more defensiveness, a higher anxiety level, and less ability to reduce tension through

motor discharge than those cases where growth was slow. These conclusions are based primarily on results of the Minnesota multiphasic personality inventory. Though all patients received the Wechsler Bellevue intelligence scale and though functioning on certain parts of the scale is quite vulnerable to the effects of anxiety there is no discussion of sub-test results. Less than half of the patients studied received the Rorschach test. The psychologic tests appear to have been selected for ease in tabulating results and the presentation of these results is decidedly superficial. The psychologic and psychiatric evaluations of 4 individual cases are presented and discussed.

Studies of autonomic function in neoplastic diseases have been begun and a preliminary report has been included in the symposium. These investigations are incomplete, but if one accepts the hypothesis that emotion has some direct or indirect effect upon growth of cancer tissue, one must conclude that sympathetic nervous system activity may facilitate such growth.

All participants in the symposium stress the need of critical evaluation and further investigation of their findings which is particularly necessary in view of the small number of cases studied, the difficulty in establishing criteria for the fast and slow growing groups, and the limited psychologic studies. Nevertheless, this is a stimulating discussion which should prove of interest to all physicians and psychologists who recognize that separation of mental and physical functioning is an artificial distinction which obscures rather than clarifies our understanding of behavior.—*Margaret Mercer, Ph.D.*

Hospitalization of Mental Patients. Geneva, Switzerland, World Health Organization, 1955. Pp. 100. Price $1.25 (6/9, Sw fr. 4).

This little volume, reprinted from the International Digest of Health Legislation *6*:1–100, 1955 contains a wealth of information on the topic stated, not only for the countries of Western Europe, Africa, North and South America, and Australia, but for Viet Nam, Indonesia, and Ceylon. We thus are given a conspectus of world legislation regarding the provisions for hospital care of the mentally ill, the mentally defective, epileptics, addicts and alcoholics, offenders and sexual psychopaths; admission of various sorts; discharge; safeguards; and trends. The text is followed by a very convenient tabular presentation of the essential facts. The whole is preceded by a comprehensive historical survey of the treatment of the mentally ill.

Among the trends noted in legislation now under consideration are the development of extramural care and supervision, and further use of voluntary and other noncompulsory types of admission.

The booklet is a valuable work of reference.—*Winfred Overholser, M.D.*

The Role of Humoral Agents in Nervous Activity. BRUNO MINZ, M.D. Springfield, Ill., Charles C Thomas, 1955. Pp. 230. Price $7.75.

With the current interest in modification of the function of the nervous system by pharmacologic agents, this book represents a timely compendium of the state

of our knowledge concerning the role of humoral agents in nervous activity. The monograph grew out of a series of seminars delivered by the author at the Department of Pharmacology of the University of Illinois in Chicago.

The book is divided into five chapters. The first chapter deals with the origin of the concept of neurohumoral transmission in an historical fashion and leads through the classical experiments of Loewi with the frog heart up to the mammalian experiments beginning around 1925. In the second chapter he reviews the evidence of both electrical and chemical transmission in the autonomic nervous system, and he summarizes the elements that must be considered in formulating the final theory. However, the author feels that we have probably not filled in all of the gaps in this complex mechanism. A much more detailed discussion of cholinergic and adrenergic mechanism occurs in the next two chapters, while the last chapter of only thirty pages is concerned with the role of humoral agents in the central nervous system. After reviewing the data, he again points out the difficulty of drawing any unequivocal conclusions, but he feels that the bulk of the evidence supports the view that cholinergic elements play a role in the regulation of central activity. As a result of recent work published with Legouix in 1954, which showed that acetylcholine can be liberated anywhere in the body under certain conditions, he believes neurophysiology of the future may concern itself with the role of "neurotropic agents" rather than chemical "transmitters." Each chapter is followed by a considerable list of references.

This book represents an excellent source for anyone wishing to bring himself up to date in respect to humoral agents. Those with only incidental interest and no previous experience in the field may find it tough sledding. One could wish that the significance of some of the data could have been stressed a little more. An occasional typographical error does not detract from the over-all value of the book.

—Franklin Martin, Jr., M.D.

A Doctor's Book of Hours. MERRILL MOORE, M.D. Charles C Thomas, Springfield, Ill., 1955. Pp. 397 + xvi. Price $6.00.

Our fellow psychiatrist, Dr. Merrill Moore, is not only a physician, he is a poet of note and of amazing versatility and prolificity. How many sonnets he has written probably he himself does not know; the number long since exceeded the sum of the sonnets of Petrarch, Milton, and Shakespeare put together.

This volume, arranged like a breviary with a reading for each day of the year, represents a careful selection by Doctor Moore of what he considers his best work. The scope is vast—"Analysis of Men," "Analysis of Women," "Natural History," "The Clinic," "Travel," "Public Affairs," "Philosophy," to mention only a few of the headings for the several months.

Here are humor, pathos, clinical observations, memories from the author's wide travels, religious thoughts, philosophy; something to fit every mood and every taste.

The format and typography conform to the usual high Thomas standard.

—Winfred Overholser, M.D.

NOTES AND ANNOUNCEMENTS

Physicians, hospitals, and clinics will be able to assist their patients in benefiting from a new provision of the Social Security Law that protects a worker's social security record while he is disabled. The new provision will "freeze" the social security earnings record of those who are unable to work because of mental or physical disability or blindness, and thereby protect the benefit payable to the person when he qualifies, or to his family in case of his death.

The determination that a person is disabled must be based upon medical evidence. The patient himself is expected to secure the initial medical evidence; therefore, he will frequently request a summary of the history, clinical findings, and treatment of his case from his physician or medical facility. The medical reports will advance the patient's welfare if they are completed promptly and accurately, with sufficient detail to support the diagnosis.

Information concerning the details of this new freeze provision, who is qualified and procedure to be followed, can be obtained from your nearest social security office.

Behavioral Science, a new quarterly journal, official publication of the new Mental Health Research Institute at the University of Michigan, will begin appearing in January, 1956. It will contain articles on general theories of behavior and on empirical research specifically oriented toward such theories. An interdisciplinary approach to problems of behavior will be stressed. Although the scope of the journal will include all aspects of behavior that can be subsumed under broadly general interdisciplinary theory, in the field of application special emphasis will be placed on contributions relating to research in mental health and disease.

The editorial board will include Franz Alexander (psychoanalysis), Alex Bavelas (social psychology), David Easton (political science), Ralph W. Gerard (neurophysiology), Donald G. Marquis (psychology), James G. Miller (psychology and psychiatry), Jacob Marschak (economics), Anatol Rapoport (mathematical biology), Ralph W. Tyler (education), and Raymond W. Waggoner (psychiatry).

Subscriptions will be $6.00 a year. Manuscripts and subscriptions may be sent in care of Dr. James G. Miller, Mental Health Research Institute, University of Michigan, Ann Arbor, Michigan.